Sewer

Acct. #:

5112216200

Company: WASHINGTON UNIVERSITY

MEDICAL SCHOOL

Address: 660 S. Euclid Ave.

City: St. Louis

State and Zip: MO , 63110

Ind_id File Code File Description

84231 31 INDUSTRY OVERFLOW

ACCOUNT NUMBER: 10243530-00

COMPANY NAME: WASHINGTON UNIV MED SCH

CORRESPONDENCE

FROM <u>01-24-11</u> THRU <u>12-21-14</u>

X CORRESPONDANCE LOCATED IN OVERFLOW INDUSTRY FILE



Metropolitan Saint Louis Sewer District 2350 Market Street Saint Louis, Missouri 63103-2555

WASHINGTON UNIVERSITY MEDICAL SCHOOL 660 S. Euclid Ave. St. Louis, MO 63110

Attn: Livi Isringhausen

Environmental Compliance Manager

INDUSTRIAL WASTEWATER DISCHARGE PERMIT NUMBER 1024353000.

ANNUAL PERMIT FEE NOTICE

For permits in effect as of 10/01/2014.

Fee will be included on the next regular monthly bill from the Metropolitan St. Louis Sewer District.

Explanation of Charges

Fee for Pretreatment Program Discharge Permit covering the period October 1, 2014 through September 30, 2015, issued in accordance with the Metropolitan St. Louis District Ordinance #12413 for the location at 660 S. Euclid Ave.

Base charge @ \$150.00 per permit Volume charge @\$0.72 per average daily Ccf Sample Point Charge @\$100.00 per sample point

569.80 Ccf(s) 7 Point(s) \$150.00 \$410.26 \$700.00

Total Fee Due:

\$1,260.26

For inquiries about the Annual Permit Fee, please call 314-436-8756. For inquiries about payment of the fee, which will appear on your upcoming monthly bill, please call 1-866-281-5737.

THIS IS NOT A BILL DO NOT PAY NOW FEE WILL BE INCLUDED ON MONTHLY BILL

Scott Rehmer

From:

Isringhausen, Mary <isringhausenm@wusm.wustl.edu>

1024-3530-00

Sent:

Monday, December 01, 2014 1:34 PM

То:

Scott Rehmer

Subject:

Lead NOV

Attachments:

14e2156-1.pdf

12/1/14

Scott-Here is the last result for our lead NOV. Let me know if you need anything else.

Hope you had a great Thanksgiving.

Livi Isringhausen

Environmental Compliance Manager

Washington University School of Medicine

office 314-362-6735

cell 314-602-8551

fax 314-362-1095

http://ehs.wustl.edu/



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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

November 26, 2014 Lab No. 14E-2156 Invoice No.192022 P.O. No. 2920311Y Page 1 of 1

REPORT OF TESTS

SAMPLE ID: WASTEWATER COMPOSITE, SP005, 11/25/14, 8:40 A.M. – 4:06 P.M.

ANALYTE	SP005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Lead, mg/L	< 0.02	0.02	200.7	11/26/14

MQL: Minimum Quantitative Limit

Steve Root, Manager Environmental Testing

SR/bnd



METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Effective:

1/1/2013

Expiration:

12/31/2017

Premise Address: Monitoring Period: 660 South Euclid Ave., St. Louis, MO, 63110

2014

(Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	er		001		003	T	005		
Dates on Which Samples Were Colle	cted	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached		
Times at Which Samples Were Colle	cted	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached		
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Record Sample	Туре	s (G,C,M, or E) /	And R	esults Below		
PARAMETER	LIMIT	_	G=grab, C-comp	osite,	M=measured flo	w, E=	estimated flow		Units
Flow ·	***	E	14;500	E	64,500	E	340,000	Ŀ	Gal/Day
Biological Oxygen Demand	***	С	See attached	С	See attached	С	See attached		mg/L
Chemical Oxygen Demand	****	С	See attached	С	See attached	С	See attached		mg/L
Total Suspended Solids	***	С	See attached	Ċ	See attached	С	See attached		mg/L
pН	5.5 - 11.5	G	See attached	G	See attached	G	See attached		pН
Oil & Grease	200	G	See attached	G	See attached	G	See attached		mg/L
Temperature	60	G	See attached	G	See attached	G	See attached		Celcius
Silver	0.5	С	See attached	С	See attached	С	See attached		mg/L
Total Phenol	7	G	See attached	Ğ	See attached	G	See attached		mg/L
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You must complete and sign the certification statements on the reverse side.

NOV 10 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

.Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2014

(Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:
Analysis Performed By:

St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	P		006		007	İ	008		009	
Dates on Which Samples Were Collect	ted	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	-
Times at Which Samples Were Collec	ted	G: C:		G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	
	#*************************************	 	ord Sample Type			<u></u>	***************************************			
PARAMETER	LIMIT		rab, C-composite		•				1	Units
Flow	***	Е	950	Ε	23,500		131,850		131,850	Gal/Day
Biological Oxygen Demand	***	С	See attached	С	See attached		See attached		See attached	mg/L
Chemical Oxygen Demand	***	С	See attached	С	See attached		See attached		See attached	mg/L
Total Suspended Solids	****	С	See attached	С	See attached		See attached		See attached	mg/L
pH	5.5 - 11.5	G	See attached	G	See attached		See attached		See attached	pН
Oil & Grease	200	G	See attached	G	See attached		See attached		See attached	mg/L
Temperature	60	G	See attached	G	See attached		See attached	,	See attached	Celcius
Silver	0.5	С	See attached	С	See attached		See attached		See attached	mg/L
Total Phenol	7	G	See attached	G	See attached	G:	See attached	G:	See attached	mg/L
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You must complete and sign the certification statements on the reverse side.

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INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
	Print or type name of signing official. Livi Isringhausen
	Title: Environmental Compliance Manager Telephone: 314-362-6735
	Signature

2

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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

November 7, 2014 Lab No. 14E-1954 Invoice No.191139 P.O. No. 2920311Y Page 1 of 7

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 10/28/14, 9:15 A.M.

WASTEWATER COMPOSITE, SP001, 10/28/14, 9:15 A.M. - 3:15 P.M.

Units: mg/L Except As Noted

ANALYTE	· SP001	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.44		150.1	10/28/4
Temperature, °C (G)	23.7		170.1	10/28/14
Biological Oxygen Demand (C)	52	5	5210-B	11/4/14
Chemical Oxygen Demand (C)	211	10	5220 D	10/31/14
Total Suspended Solids (C)	109	5	160.2	10/31/14
Oil & Grease (G)	ND	5	1664	11/3/14
Silver (C)	ND	0.01	200.8	11/4/14
Total Phenol (G)	ND	0.005	420.4	11/3/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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NOV 16 2014

ACTION OF THE PARTY OF THE PART

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Attention: Livi Isringhausen

November 7, 2014 Lab No. 14E-1954 Invoice No. 191139 P.O. No. 2920311Y Page 2 of 7

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP003, 10/27/14, 9:10 A.M.

WASTEWATER COMPOSITE, SP003, 10/27/14, 9:10 A.M. - 3:10 P.M.

Units: mg/L Except As Noted

ANALYTE	SP003	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.64		150.1	10/27/14
Temperature, °C (G)	21.7		170.1	10/27/14
Biological Oxygen Demand (C)	22	5	5210 B	11/4/14
Chemical Oxygen Demand (C)	115	10	5220 D	10/31/14
Total Suspended Solids (C)	17 [.]	5 ′	160.2	10/31/14
Oil & Grease (G)	6	- 5 '	1664	10/28/14
Silver (C)	ND	0.01	200.8	11/4/14
Total Phenol (G)	0.011	0.005	420.4	11/3/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 November 7, 2014 Lab No. 14E-1954 Invoice No. 191139 P.O. No. 2920311Y Page 3 of 7

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP005, 10/30/14, 3:30 P.M.

WASTEWATER COMPOSITE, SP005, 10/30/14, 9:30 A.M. - 3:30 P.M.

Units: mg/L Except As Noted

ANALYTE	SP005	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.74	****	150.1	10/30/14
Temperature, °C (G)	23.1	(170.1	10/30/14
Biological Oxygen Demand (C)	73	5 .	5210 B	11/4/14
Chemical Oxygen Demand (C)	178	10	5220 D	10/31/14
Total Suspended Solids (C)	22	5	160.2	10/31/14
Oil & Grease (G)	131	5 .	1664	11/3/14
Silver (C)	ND	.'0.01	200.8	11/4/14
Total Phenol (G)	. 0.134	0.05	420.4	11/4/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 November 7, 2014 Lab No. 14E-1954 Invoice No.191139 P.O. No. 2920311Y Page 4 of 7

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP006, 10/29/14, 9:15 A.M.

WASTEWATER COMPOSITE, SP006, 10/29/14, 9:15 A.M. - 4:15 P.M.

Units: mg/L Except As Noted

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ANALYTE	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS		
pH (Std. pH Units) (G)	7.25		150.1	10/29/14		
Temperature, °C (G)	21.7		170 [°] .1	10/29/14		
Biological Oxygen Demand (C)	13	5	5210 B	11/4/14		
Chemical Oxygen Demand (C)	23	10	. 5220 D	10/31/14		
Total Suspended Solids (C)	ND	5	160.2	10/31/14		
Oil & Grease (G)	ND	5	1664	11/3/14		
Silver (C)	ND	0.01	200.8	11/4/14		
Total Phenol (G)	ND	0.005	420.4	11/4/14		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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DIVISION OF ENVIRONMENTAL COMPLIANCE



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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

November 7, 2014 Lab No. 14E-1954 Invoice No.191139 P.O. No. 2920311Y Page 5 of 7

REPORT OF TESTS .

SAMPLE ID: WASTEWATER GRAB, SP007, 10/30/14, 10:00 A.M.

WASTEWATER COMPOSITE, SP007, 10/30/14, 10:00 A.M. - 4:00 P.M.

Units: mg/L Except As Noted

ANALYTE	SP007	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.20	### ## B	150.1	10/30/14
Temperature, °C (G)	23.7		- 170.1	10/30/14
Biological Oxygen Demand (C)	61	. 5	5210 B	11/4/14
Chemical Oxygen Demand (C)	128	10	5220 D	10/31/14
Total Suspended Solids (C)	55	5	160.2	10/3/14 -
Oil & Grease (G)	7	· 5	1664	11/3/14
Silver (C)	ND	0.01	200.8	11/4/14
Total Phenol (G)	0.012	0.005	420.4	11/4/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

November 7, 2014 Lab No. 14E-1954 Invoice No. 191139 P.O. No. 2920311Y Page 6 of 7

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP008, 10/30/14, 9:45 A.M.

WASTEWATER COMPOSITE, SP008, 10/30/14, 9:45 A.M. - 3:55 P.M.

Units: mg/L Except As Noted

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ANALYTE	SP008	MQL	METHOD NUMBER	DATE OF ANALYSIS		
pH (Std. pH Units) (G)	7.25		150.1	10/30/14		
Temperature, °C (G)	21.7		170.1	10/30/14		
Biological Oxygen Demand (C)	720	50	5210 B	11/4/14		
Chemical Oxygen Demand (C)	1310	100	5220 D	10/31/14		
Total Suspended Solids (C)	734	10	160.2	10/31/14		
Oil & Grease (G)	40	5	1664	11/3/14		
Silver (C)	ND	0.01	200.8	11/4/14		
Total Phenol (G)	0.119	0.1	420.4	11/4/14		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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DIVISION OF ENVIRONMENTAL COMPLIANCE





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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

November 7, 2014 Lab No. 14E-1954 Invoice No. 191139 P.O. 2920311Y Page 7 of 7

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP009, 10/27/14, 9:00 A.M.

WASTEWATER COMPOSITE, SP009, 10/27/14, 9:00 A.M. -,3:00 P.M.

Units: ma/L Except As Noted

ANALYTE	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.71		150.1	10/27/14
Temperature, °C (G)	21.1		170.1	10/27/14
Biological Oxygen Demand (C)	153	5	5210 B	11/4/14
Chemical Oxygen Demand (C)	518	10	· 5220 D	10/31/14
Total Suspended Solids (C)	214	5	/ 160.2	10/31/14
Oil & Grease (G)	28	5	1664	11/3/14
Silver (C)	ND	0.01	200.8	11/4/14
Total Phenol (G)	0.119	0.025	420.4	11/3/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

SR/bnd

Steve Root, Manager Environmental Testing

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DINISION OF ENVIRONMENTAL CONTENTS



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SEE REVERSE FOR CONDITIONS.

METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I:	IDENTI	FYING INFORMATION	N.		
Company Name:	Washingto	on University Medical Scho	ol		
Permit No:	1024	353000			
Premise Address:		Euclid, St. Louis, MO 631	10		
Reporting Period	: 2014	[(JAN-MAR)	(APR-JUN)	(JUL-SEP)	OCT-DEC
PART II:	RECOR	D OF DISPOSAL OF RA	ADIOACTIVE MATER	RIALS TO THE SEWER	
	RAI	DIONUCLIDE	ACTIVITY D	ISCHARGED (millicuries)	
C-14					0.0198
Ca-45					0.0700
H-3					23.7718
H-3w					0.0010
I-125					0.0902
P-32					0.1195
S-35					0.1141
	TOTAL A	ACTIVITY DISCHARGE	D:		24.1863
A. CERTII	complete in FICATION fy that to the ning disposaturi Department	the information under It N OF COMPLIANCE W e best of my knowledge & l	TH STATE AND FED pelief, all requirements of awage for material regulate have been met for the per	ERAL REGULATIONS 10 CFR Part 20.2003 and 19 2d by the Nuclear Regulatory 3 iod covered by this report.	
system designed the person or person submitted is to the	to assure the sons who m e best of m	at qualified personnel prope anage the system, or those p	erly gather and evaluate the persons directly responsible, accurate, and complete.	under my direct supervision e information submitted. Bas le for gathering the informati I am aware that there are sign r knowing violations.	ed on my inquiry of on, the information
Print/Type name	of signing o	fficial: Karla Spafford			
Title: Radiation S	Safety Speci	alist	Telephone	e: <u>(314) 362-4968</u>	antagenggangeougyfryferhingglynnosferynnosodoniddiddylddiagyddionoddiddddddd
Signature:	Was	VP	Date: 10/	17/2014	DD:d
<i>*1</i>	809	<i>'</i> !		REC	RE: radrpt.doc 2/00

OCT 2 1 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University in St. Louis Environmental Health & Safety

October 21, 2014

Mr. Scott Rehemer
Environmental Engineering Associate
Metropolitan Sewer District
Division of Environmental Compliance
10 East Grand Ave.
St. Louis, MO 63147-2913

WASH. UNIV. MED. SCHOOL

RE: Notice of Violation 9/16/2014-Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid, 63110

Dear Mr. Rehemer:

With regard to the Notice of Violation sent September 17, 2014, the second report of the sample verifying a return to compliance is enclosed. The third report will be included in our 4th quarter self Monitoring Report

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely

Livi Isringhausen

Environmental Compliance Manager

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Washington University in St. Louis, Campus Box 8229, 660 South Euclid, St. Louis, MO 63110 (314) 362-6735, Fax (314) 362-1095, isringhausenm@wusm.wustl.edu, http://ehs.wustl.edu/

OCT 2 1 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE



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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

October 20, 2014 Lab No. 14E-1898 Invoice No. 190137 P.O. No. 2920311Y Page 1 of 1

REPORT OF TESTS

SAMPLE ID: WASTEWATER COMPOSITE, SP005, 10/16/14, 9:00 A.M. - 3:45 P.M.

ANALYTE	SP005	MQL	MÈTHOD NUMBER	DATE OF ANALYSIS	
Lead, mg/L	< 0.02	0.02	200.7	10/17/14	

MQL: Minimum Quantitative Limit

Stëve Root, Manager Environmental Testing

SR/bnd

RECEIVED

OCT 2 1 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE



AN OFFICIAL COPY OF TEST REPORT WILL HE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST, LOUIS TESTING LABORATORIES, INC.
SEE REVERSE FOR CONDITIONS.

Washington University in St. Louis Environmental Health & Safety

SR # 10/8

October 8, 2014

Mr. Scott Rehemer
Environmental Engineering Associate
Metropolitan Sewer District
Division of Environmental Compliance
10 East Grand Ave.
St. Louis, MO 63147-2913

RE: Notice of Violation 9/16/2014- Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid. 63110

Dear Mr. Rehemer:

With regard to the Notice of Violation sent September 17, 2014, the following is WUSM's report of corrective actions and Reports of Tests showing compliance, to ensure compliance with MSD reporting requirements.

Corrective action for discharge above limitations for lead at Sample Point 005:

Washington University School of Medicine has determined that the source of the lead is the result of a construction worker cutting lead at the dock area of the East Building. During the time of the sampling WUSM was constructing a new Cyclotron, which required lead sheeting to be cut for radiation shielding on the isotope delivery lines from the cyclotron hot cells. Our Project Manager found the construction crew cutting the lead sheeting on the dock of the East Building and therefore he shut down the operation and had it moved to the Machine Shop. At the shop the lead was then cut on plastic sheeting which was then collected and removed as Hazardous Waste. WUSM has since communicated to the Project Managers that all cutting involving lead must be done at the

Shop with plastic sheeting to collect any shavings and removed as Hazardous Waste. This incident will also be used as an example of what not to do in training.

A report of the sample verifying a return to compliance is enclosed

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely,

Livi Isringhausen

Environmental Compliance Manager

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OCT 0 8 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University in St. Louis, Campus Box 8229, 660 South Euclid, St. Louis, MO 63110 (314) 362-6735, Fax (314) 362-1095, isringhausenm@wusm.wustl.edu, http://ehs.wustl.edu/

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2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 September 29, 2014 Lab No. 14E-1765 Invoice No.189210 P.O. No. 2920311Y Page 1 of 1

Attention: Liv Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER COMPOSITE, SP005, 9/25/14, 9:30 A.M. - 5:30 P.M.

ANALYT	TE	SP005	MQL	METHOD NUMBER	DATE OF ANALYSIS	
Lead, mg/L		0.17	0.01	200.8	9/29/14	

MQL: Minimum Quantitative Limit

Steve Root, Manager Environmental Testing

SR/bnd

23,038 NO YNOTARORAL DOT YN DIBOVOT DELEN. DOMINIOUS CONTROLL AND TROUBLED OF THE CONTROL AND
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OCT 0 8 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE



Metropolitan St. Louis Sewer District

Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913

Phone: 314.768.6200 www.stlmsd.com

September 16, 2014

Livi Isringhausen
Environmental Compliance Manager
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 S. Euclid Avenue, Campus Box 8229
St. Louis, MO 63110

RE: NOTICE OF VIOLATION - WASTEWATER DISCHARGE PERMIT NO. 1024353000-1,

SEWER USE ORDINANCE NO. 12559

For premise at: 660 S. Euclid Avenue, 63110

Dear Ms. Isringhausen:

We have reviewed the third quarter 2014 self-monitoring report, required under the permit referenced above, that you recently submitted to MSD. Unfortunately, we have identified the following violation:

VIOLATION OF DISCHARGE LIMITATIONS:

		SAMPLE	SAMPLE		DISCHARGE	LIMIT	VALUE
DATE	TIME	POINT	TYPE	POLLUTANT	<u>LIMIT</u>	TYPE	<u>FOUND</u>
07-29-14	1545	005	Comp-7 hrs.	Lead (T)	0.40 mg / L	DA	0.48 mg / L **

005 = MH 200' W of Taylor Ave. on S side of Scott Ave. in street mg/L = milligrams per liter

T = Total substance DA = Daily Average

See enclosure for explanation of asterisks which appear in the Value Found column

REQUIRED ACTION/RESPONSE:

- 1. Submit a report of corrective actions to ensure compliance with <u>MSD limitations for Lead</u>. In the report:
 - a. Indicate which corrective actions are initiated and which are still to come
 - b. Include plans for additional sampling to verify a return to compliance
- 2. Submit all additional sampling results to MSD. Sample collection must occur as follows:
 - a. Sample at the identified sampling point
 - b. Collect composite samples for Lead at sample point 005
 - c. Take samples at times representative of normal operations
- 3. Refer to the enclosure for additional information on:
 - a. Potential enforcement actions should noncompliance continue
 - b. The meaning of any asterisks that appear in the Value Found column above
 - c. Percentages applicable to Significant Noncompliance, when planning for additional sampling

4. Please submit your response no later than October 20, 2014.

Thank you for helping us to comply with state and federal regulations. If you have any questions, please contact me at 314.436.8756.

Sincerely,

METROPOLITAN ST. LOUIS SEWER DISTRICT

Scott M. Rehmer Assistant Engineer

Enclosure: SNC enclosure, Sample point map

cc: Doug Mendoza Mike Kynion

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

1024-3530-00

Company Name:

Washington University School of Medicine

Permit No:

51122162-00 2014

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

. (Jan-Mar)

(Apr-June) √ (July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By: PART II:

St. Louis Testing Laboratories ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	***************************************		001		003		005		
Dates on Which Samples Were Collected		G: C:	see attatched see attatched		see attatched see attatched		see attatched see attatched		
Times at Which Samples Were Collected		G:	see attatched	G:	see attatched see attatched	G:	see attatched see attatched		
Titles at Which Gamples Were Collected			see attatched		***************************************				
	LIMIT	1			(G,C,M, or E) / //ameasured flo				Units
PARAMETER	LIMIT	E	28,250	E.	55,500	E	450,000		Gal/Day
Flow	****	C·		С	see attatched	c	see attatched		mg/L
Biological Oxygen Demand (C)	****	С	see attatched	c	see attatched	c	see attatched		mg/L
Chemical Oxygen Demand (C)	****	c		c	see attatched	č	see attatched		mg/L
Total Suspended Solids (C)	5.5 - 11.5	G	see attatched	G	see attatched	G	see attatched		pH
pH (Std. pH Units) (G)	60	G		G	see attatched	G	see attatched		mg/L
Temperature, °C (G)	200	G	see attatched see attatched	G	see attatched	G	see attatched		Celcius
Oil & Grease (G)	0.4	G	see attatched	C	see attatched	c	see attatched		mg/L
Total Cyanide (G)	0.7	С	see attatched	С	see attatched	c	see attatched	 	mg/L
Cadmium (C)	5	С	see attatched	c	see attatched	С	see attatched	-	mg/L
Chromium (C)	2.7	G	see attatched	G	see attatched	_	see attatched	\vdash	mg/L
Copper (C)	0.4	G		G	see attatched	G	see attatched	<u> </u>	mg/L
Lead (C)	2.3	G	see attatched see attatched	G	see attatched	G	see attatched	<u> </u>	mg/L
Nickel (C)	0.2	c	see attatched	c	see attatched	c	see attatched	 	mg/L
Selenium (C)	0.5	c	see attatched		see attatched	c	see attatched	 	mg/L
Silver (C)	***	c	see attatched	c	see attatched	 -	see attatched	\vdash	mg/L
Thallium (C)	3	C	see attatched	c	see attatched	c	see attatched	一	mg/L
Zinc (C)	0.01	c	see attatched	č	see attatched	 	see attatched	<u> </u>	mg/L
Mercury (C)	- 0.01	۱ŭ	001	اٽ	003	Ť	005	✝	
		G:		G:	see attatched	G:	see attatched	┨	
		G:	see attatched		see attatched		see attatched	 _	
1,1,1,-Trichloroethane	5.884	G	see attatched	G'	see attatched	G	see attatched	 	mg/L
1,1,2,2-Tetrachloroethane	5.844	G	see attatched	G	see attatched	<u>G</u>	see attatched	ـــ	mg/L
1,1,2- Trichloroethane	5.844	G	see attatched	G	see attatched	1	see attatched	-	mg/L
1,1-Dichloroethane	5.844	G	see attatched	↓ <u>G</u>	see attatched	1	see attatched	ــ	mg/L
1,1-Dichloroethene	5.844	G	see attatched	G	see attatched	†	see attatched	╀	mg/L
1,2- Dichlorobenzene	5.844	G	see attatched	G	see attatched		see attatched	┼	mg/L
1,2-Dichloroethane	5.844	G	see attatched	G	see attatched	_	see attatched	↓	mg/L
1,2- Dichloropropane	5.844	G	see attatched	G	see attatched	_	see attatched	╁	mg/L
1,3- Dichlorobenzene	5.844	G	see attatched	G	see attatched	┪	see attatched	╀	mg/L
1,4- Dichlorobenzene	5.844	G	see attatched	G	see attatched	1	see attatched	╀-	mg/L
2-Chloroethyl vinyl ether	5.844	<u> G</u>	see attatched	Ų G	see attatched	G	see attatched	╀	mg/L
Acrolein	5.844	G	see attatched	G	see attatched		see attatched	┼	mg/L
Acrylonitrile	5.844	.G	see attatched	G	see attatched		see attatched	╄	mg/L
Benzene	5.844	G	see attatched	ı G	see attatched		see attatched	╀—	mg/L
Bromodichloromethane	5.844	G	see attatched	I G	see attatched	4	see attatched	┿	mg/L
Bromoform	5.844	↓ <u>G</u>	see attatched	<u> </u>	see attatched	1	see attatched	┼	mg/L
Bromomethane	5.844	G	 		see attatched		see attatched	_	mg/L
Carbon tetrachloride	5.844		see attatched		1	1 -	see attatched	1	mg/L
Chlorobenzene	5.844	G	 	_	·	T -	see attatched	_	mg/L
Chloroethane	5.844	G		_	see attatched	_	see attatched	_	mg/L
Chloroform.	5.844	G		T	see attatched	_	see attatched		mg/L
Chloromethane	5.844	↓ G		1	see attatched	_	see attatched	7-	mg/L
cis-1,3 - Dichloropropene	5.844	G	+		see attatched	_	see attatched	7-	mg/L
Dibromochloromethane	5.844	G	+			_	see attatched		mg/L
Ethylbenzene	5.844	G		_		_	see attatched	1	mg/L
Methylene chloride	5.844	G	see attatche	d G	see attatched	d G	see attatched		mg/L

Tetrachloroethene Toluene trans-1,2-Dichloroethene trans-1,3-Dichloropropene Trichloroethene 1,2,4-Trichlorobenzene 1,2- Diphenylhydrazine 2,4,6-Trichlorophenol 2,4,Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Chlorophenol 2-Nitrophenol 3,3-Dichlorobenzidine 4,6- Dinitro-2-methylphenol 4-Chloro-3-methylphenol 4-Nitrophenol Acenaphthene Acenaphthylene Anthracene Azobenzene Benzo(a)pyrene Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether Diethyl Phthlate Hexachloroethane Isophorone Naphthalene Nitrobenzene N-Nitrosodimethylamine Pentachlorophenol Phenanthrene Phenol Pyrene Aldrin Cholordane

Dieldrin gamma-BHC Heptachlor epoxide

C							
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	. mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
6.844	G	see attatched		see attatched	Г	see attatched	mg/L
7.844	G	see attatched		see attatched	Γ	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844		see attatched		see attatched		see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	Ģ	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	mg/L

You must complete and sign the certification statements on the reverse side.

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2008

(Jan-Mar)

√ (July-Sept) (Apr-June)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

* flows provided per pe w/L. Isring hausen on 9-12-14.

MSD Sample Point Reference Number			006		007		008 ┺		009 *	>	K
		G:	see attatched	G:	see attatched	G:	see attatched	G:	see attatched		
Dates on Which Samples Were Collected		C:	see attatched	C:	see attatched		see attatched	C:	see attatched see attatched		
Times at Which Samples Were Collected		G: C:	see attatched see attatched	G: C:	see attatched see attatched		see attatched see attatched		see attatched		
		Reco	rd Sample Types	(G,C,	M, or E) And Re	sults	Below				
PARAMETER		G=gr	ab, C-composite,	M=m	easured flow, E	estim				-	Units
Flow	LIMIT	Ε	24,000	E	8,900	E	132K	Ε	132K		Gal/Day
Biological Oxygen Demand (C)	***	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
Chemical Oxygen Demand (C)	***	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
Total Suspended Solids (C)	***	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
pH (Std. pH Units) (G)	5.5 - 11.5	G	see attatched	G	see attatched	G	see attatched	G	see attatched		рН
Temperature, °C (G)	60	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Oil & Grease (G)	200	G	see attatched	G	see attatched	G	see attatched	G	see attatched		Celcius
Total Cyanide (G)	0.4	С	see attatched	С	see attatched	С	see attatched	C	see attatched		mg/L
Cadmium (C)	0.7	С	see attatched	С	see attatched	С	see attatched	C	see attatched		mg/L
Chromium (C)	5	С	see attatched	С	see attatched	С	see attatched	C	see attatched		mg/L
Copper (C)	2.7	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Lead (C)	0.4	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Nickel (C)	2.3	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Selenium (C)	0.2	С	see attatched	С	see attatched	С	see attatched	C	see attatched		mg/L
Silver (C)	0.5	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
Thallium (C)	***	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
Zinc (C)	3	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
Mercury (C)	0.01	С	see attatched	С	see attatched	С	see attatched	С	see attatched		mg/L
			006		007		008		009		
• •		G:	see attatched	G:	see attatched		see attatched	G:	see attatched		
	· · ·	G:	see attatched	G:		 	see attatched	G:	see attatched		1 0
1,1,1,-Trichloroethane	5.884	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
1,1,2,2-Tetrachloroethane	5.844	G	see attatched	F	see attatched	Ë	see attatched	G	see attatched		mg/L
1,1,2- Trichloroethane	5.844 5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched see attatched		mg/L mg/L
1,1-Dichloroethane	5.844	G	see attatched see attatched	G	see attatched	G	see attatched see attatched	G	see attatched		mg/L
1,1-Dichloroethene 1,2- Dichlorobenzene	5.844	l G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
1,2-Dichloroethane	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
1,2- Dichloropropane	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
1,3- Dichlorobenzene	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
1,4- Dichlorobenzene	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
2-Chloroethyl vinyl ether	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Acrolein	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Acrylonitrile	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Benzene	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
Bromodichloromethane	5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L

Bromoform
Bromomethane
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
cis-1,3 – Dichloropropene
Dibromochloromethane
Ethylbenzene
Methylene chloride
Tetrachloroethene
Toluene
trans-1,2-Dichloroethene
trans-1,3-Dichloropropene
Trichloroethene
1,2,4-Trichlorobenzene
1,2- Diphenylhydrazine
2,4,6-Trichlorophenol
2,4,Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chlorophenol
2-Nitrophenol
3,3-Dichlorobenzidine
4,6- Dinitro-2-methylphenol
4-Chloro-3-methylphenol
4-Nitrophenol
Acenaphthene
Acenaphthylene
Anthracene
Azobenzene
Benzo(a)pyrene
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether
Diethyl Phthlate
Hexachloroethane
Isophorone
Naphthalene
Nitrobenzene
N-Nitrosodimethylamine
Pentachlorophenol
Phenanthrene
Phenol
Pyrene
Aldrin
Cholordane
Dieldrin
gamma-BHC
Hantachter annuide

Heptachlor epoxide

				I	г		<u> </u>	т		Г
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	<u>G</u>	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	. <u>G</u>	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G.	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched.	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G.	see attatched	G.	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G-	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	·G	see attatched	G	see attatched		mg/L
6.844	·G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
7.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched	•	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G			
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	***********************	G		G		G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
		see attatched		see attatched		see attatched		see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	6	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched	_	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	<u>G</u>	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched	_	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	·G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched	_	mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	Ġ	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L
5.844	G	see attatched	G	see attatched	G	see attatched	G	see attatched		mg/L



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Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 September 9, 2014 Lab No. 14E-1348 Invoice No.188206 P.O. No. 2920311Y Page 1 of 28

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP001, 8/20/14, 9:00 A.M.

WASTEWATER COMPOSITE, SP001, 8/20/14, 9:00 A.M. - 3:30 P.M.

Units: mg/L Except As Noted

ANALYTE	SP001	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.62		150.1	8/20/14
Temperature, °C (G)	29.2		170.1	8/20/14
Biological Oxygen Demand (C)	51	5	5210 B	8/27/14
Chemical Oxygen Demand (C)	224	10	5220 D	8/21/14
Total Suspended Solids (C)	49	5	160.2	8/21/14
Oil & Grease (G)	. ND	5	1664	8/22/14
Total Cyanide (G) -	ND	0.01	335.4	8/26/14
Cadmium (C) -	ND	0.01	200.8	9/5/14
Chromium (C) -	ND	0.01	200.8	9/5/14
Copper (C) -	0.030	0.01	200.8	9/5/14
Lead (C) -	0.010	0.01	· 200.8	9/5/14
Nickel (C) -	ND -	0.01	200.8	9/5/14
Selenium (C) /	ND	0.01	200.8	9/5/14
Silver (C) ~	ND	0.01	200.8	9/5/14
Thallium (C) -	· ND	. 0.01	200.8	9/5/14
Zinc (C) -	0.058	0.01	200.8	9/5/14
Mercury (C)	ND	0.005	200.8	9/5/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 8/20/14, 9:00 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

	ANALYTE	SP001	MQL	ANALYTE	SP001	MQL
\neg	1,1,1-Trichloroethane	ND	0.005	Bromomethane	ND	0.010
	-1,1,2,2-Tetrachloroethane	ND	0.005	Carbon tetrachloride /	ND ND	0.005
٧	-1,1,2-Trichloroethane	ND	0.005	Chlorobenzene /	ND	0.005
	1,1-Dichloroethane	ND	0.005	Chloroethane	ND	0.010
	1,1-Dichloroethene	ND	0.005	Chloroform /	0.0013(J)	0.005
4	·1,2-Dichlorobenzene	ND	0.005	Chloromethane	ND	0.010
	1,2-Dichloroethane	ND	0.005	cis-1,3 – Dichloropropene	ND	0.005
	1,2-Dichloropropane	ND	0.005	Dibromochloromethane	ND	0.005
	1,3-Dichlorobenzene	ND	0.005	Ethylbenzene /	ND	0.005
\dashv	1,4-Dichlorobenzene	ND	0.005	Methylene chloride /	ND	0.005
-	2-Chloroethyl vinyl ether	ND.	0.020	Tetrachloroethene	ND	0.005
\dashv	Acrolein	ND	0.010	Toluene /	ND	0.005
-	Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND	0.005
_	Benzene	ND	.0.002	trans-1,3- Dichloropropene	ND	0.005
	Bromodichloromethane	ND	0.005	Trichloroethene /	ND	0.005
ij	Bromoform	- ND	0.005			

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 Date of Analysis: 8/26/14





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 8/20/14, 9:00 A.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

	ANALYTE	SP001	MQL	ANALYTE	SP001	MQL
	1,2,4-Trichlorobenzene	ND	0.095	Benzidine /	ND	0.095
-	-1,2- Diphenylhydrazine	ND	0.095	Benzo(a)pyrene	ND	0.095
4	2,4,6-Trichlorophenol	ND	0.095	Bis(2-chloroethoxy)methane	ND	0.095
4	-2,4,Dichlorophenol	ND	0.095	Bis(2-chloroethyl)ether/	ND	0.095
-	2,4-Dimethylphenol	ND	0.095	Bis(2-chloroisopropyl)ether	ND	0.095
_	2,4-Dinitrophenol	ND	0.189	Diethyl phthalate / .	ND	0.095
4	-2,4-Dinitrotoluene	ND	0.095	Hexachlorobenzene 🗸	ND	0.095
_	-2,6-Dinitrotoluene	ND	0.095	Hexachlorocyclopentadiene/	, ND	0.189
7	-2-Chlorophenol	ND	0.095	Hexachloroethane /	ND	0.095
_	-2-Nitrophenol	ND	0.189	Isophorone /	ND	0.095
	3,3-Dichlorobenzidine	ND	0.095	Naphthalene /	ND	0.095
-	- 4,6-Dinitro-2-methylphenol	ND	0.189	Nitrobenzene /	ND	0.095
_	4-Chloro-3-methylphenol	ND	0.095	N-Nitrosodimethylamine	ND	0.189
-	- 4-Nitrophenol	ND	0.189	Pentachlorophenol /	ND	0.189
_	-Acenaphthene	ND	0.095	Phenanthrene /	ND	0.095
_	- Acenaphthylene	ND	0.095	Phenol /	ND	0.047
_	Anthracene	ND	0.095	Pyrene /	ND	0.095
	Azobenzene	ND	0.095			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/26/14





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 8/20/14, 9:00 A.M.

Units: μg/L (ppb) PESTICIDES

	ANALYTE	SP001	MQL		
Aldrin		ND	0.05		
Chlor	odane	ND	0.05		
Dield	rin ·	ND	0.05		
gamn	na-BHC	ND	0.05		
Hepta	achlor epoxide	ND ·	0.05		

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: 3510C/8081B Date of Analysis: 8/26/14





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP003, 7/29/14, 9:50 A.M.

WASTEWATER COMPOSITE, SP003, 7/29/14, 9:50 A.M. - 3:50 P.M.

Units: mg/L Except As Noted

ANALYTE	SP003	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	8.82		150.1	7/29/14
Temperature, °C (G)	29.2		170.1	7/29/14
Biological Oxygen Demand (C)	73	5	5210 B	8/4/14
Chemical Oxygen Demand (C)	170	10	5220 D	7/30/14
Total Suspended Solids (C)	72	5	160.2	7/31/14
Oil & Grease (G)	6	5	1664	7/29/14
Total Cyanide (G)	ND:	0.01	335.4	8/4/14
Cadmium (C)	ND	0.01	200.8	. 8/7/14
Chromium (C)	0.087	0.01	200.8	8/7/14
Copper (C)	0.026	0.01	200.8	8/7/14
Lead (C)	0.021	0.01	200.8	8/7/14
Nickel (C)	0.056	0.01	200.8	8/7/14
Selenium (C)	ND	0.01	200.8	8/7/14
Silver (C)	ND	0.01	200.8	8/7/14
Thallium (C)	· ND·	0.01	200.8	8/7/14
Zinc (C)	0.11	0.01	200.8	8/7/14
Mercury (C)	ND	0.005	200.8	8/7/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP003, 7/29/14, 9:50 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

	O111101 L					
	ANALYTE	SP003	MQL	ANALYTE	SP003	MQL
7	1,1,1-Trichloroethane	ND	0.005	Bromomethane	ND	0.010
4	-1,1,2,2-Tetrachloroethane	ND	0.005	Carbon tetrachloride /	ND .	0.005
_	1,1,2-Trichloroethane	ND	0.005	Chlorobenzene <	· ND	0.005
	1,1-Dichloroethane	ND .	0.005	Chloroethane	ND	0.010
	1,1-Dichloroethene	ND	0.005	Chloroform /	0.0021 (J)	0.005
	-1,2-Dichlorobenzene	ND	0.005	Chloromethane	ND .	0.010
-	-1,2-Dichloroethane	ND :	0.005	cis-1,3 – Dichloropropene	ND	0.005
	1,2-Dichloropropane	ND	0.005	Dibromochloromethane	ND	0.005
	1,3-Dichlorobenzene	ND	0.005	Ethylbenzene /	0.012	0.005
_	-1,4-Dichlorobenzene	ND	0.005	Methylene chloride /	ND	0.005
	2-Chloroethyl vinyl ether	ND	0.020	Tetrachloroethene	ND	-0.005
_	Acrolein	ND	0.10	Toluene /	ND	0.005
-	- Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND	0.005
_	-Benzene	ND	0.002	trans-1,3- Dichloropropene	ND	0.005
	Bromodichloromethane	ND	0.005	Trichloroethene /	ND	0.005
-ي	-Bromoform	ND	0.005			

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 Date of Analysis: 7/31/14 Dilution Factor: 1





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September 9, 2014

Attention: Livi Isringhausen

REPORT OF TESTS

WASTEWATER GRAB, SP003, 7/29/14, 9:50 A.M

Units: mg/L **SEMI-VOLATILE ORGANIC COMPOUNDS**

	ANALYTE	SP003	MQL	ANALYTE	SP003	MQL
	1,2,4-Trichlorobenzene	ND	0.10	Benzidine /	ND	0.01
<u></u>	1,2- Diphenylhydrazine	ND	0.10	Benzo(a)pyrene	ND	0.01
	-2,4,6-Trichlorophenol	ND	0.10	Bis(2-chloroethoxy)methane /	ND	0.10
-53	-2,4,Dichlorophenol	ND .	0.10	Bis(2-chloroethyl)ether /	ND	0.10
ش	⁻ 2;4-Dimethylphenol	ND	0.10	Bis(2-chloroisopropyl)ether	, ND	0.10
· 🖘	2,4-Dinitrophenol	ND	0.20	Diethyl phthalate /	ND	0.10
÷	-2;4-Dinitrotoluene	ND	0.10	Hexachlorobenzene /	ND	0.10
=	-2,6-Dinitrotoluene	ND	0.10	Hexachlorocyclopentadiene <	ND	0.10
44	-2-Chlorophenol	ND	0.10	Hexachloroethane /	ND	0.10
-	2-Nitrophenol	ND	0.20	Isophorone /	ND	0.10
	3,3-Dichlorobenzidine	ND	0.10	Naphthalene /	ND	0.10
-	-4,6-Dinitro-2-methylphenol	ND	0.20	Nitrobenzene /	ND	0.10
7	₹4-Chloro-3-methylphenol	ND	0.20	N-Nitrosodimethylamine	ND	0.20
=	≥4-Nitrophenol	ND	0.20	Pentachlorophenol /	ND	0.20
ج	-Acenaphthene	ND	0.01	Phenanthrene /	ND	0.10
-=	-Acenaphthylene	ND	0.01	Phenol /	ND	0.05
=	- Anthracene	ND	0.01	Pyrene /	ND	0.10
	Azobenzene	ND	0.10			

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/5/14





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP003, 7/29/14, 9:50 A.M.

Units: μg/L (ppb) PESTICIDES

ANALYTE	SP003	MQL
Aldrin	ND	1.25
Chlorodane	ND	1.25-
Dieldrin	ND	1.25
gamma-BHC	ND	1.25
Heptachlor epoxide	- ND	1.25

MQL: Minimum Quantitative Limit
ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: 3510C/8081B Date of Analysis: 8/1/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: V

WASTEWATER GRAB, SP005, 7/29/14, 9:00 A.M.

WASTEWATER COMPOSITE, SP005, 7/29/14, 9:00 A.M. - 3:45 P.M.

Units: mg/L Except As Noted

ANALYTE	SP005	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	8.23		150.1	7/29/14
Temperature, °C (G)	26.5	*****	170.1	7/24/14
Biological Oxygen Demand (C)	73 -	5	5210 B	8/4/14
Chemical Oxygen Demand (C)	136	10	5220 D	7/30/14
Total Suspended Solids (C)	46	5	160.2	7/31/14
Oil & Grease (G)	9	5	¹ 1664	7/29/14
Total Cyanide (G)	ND	0.01	335.4	8/4/14
Cadmium (C)	- ND	0.01	200.8	8/7/14
Chromium (C)	ND	0.01	200.8	8/7/14
Copper (C)	0.066	0.01	200.8	8/7/14
Lead (C)	0.48	0.01	200.8	8/7/14
Nickel (C)	ND	0.01	200.8	8/7/14
Selenium (C)	ND	0.01	200.8	8/7/14
Silver (C)	ND	0.01	200.8	¹ 8/7/14
Thallium (C)	ND ,	0.01	200.8	8/7/14
Zinc (C)	0.085	0.01	200.8	8/7/14
Mercury (C)	ND	0.005	. 200.8	8/7/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP005, 7/29/14, 9:00 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP005	MQL	¹ ANALYTE	SP005	MQL
1,1,1-Trichloroethane	ND	0.005	Bromomethane	ND	0.010
1,1,2,2-Tetrachloroethane	ND	0.005	Carbon tetrachloride	ND	0.005
1,1,2-Trichloroethane	ND	0.005	Chlorobenzene	ND	0.005
1,1-Dichloroethane	ND	0.005	Chloroethane	ND.	0.010
1,1-Dichloroethene	ND	0.005	Chloroform	0.0026 (J)	0.005
1,2-Dichlorobenzene	ND	0.005	Chloromethane	ND -	0.010
1,2-Dichloroethane	ND	0.005	cis-1,3 – Dichloropropene	ND.	0.005
1,2-Dichloropropane	ND	0.005	Dibromochloromethane :	ND	0.005
1,3-Dichlorobenzene	ND	0.005	Ethylbenzene	ND	0.005
1,4-Dichlorobenzene	ND	0.005	Methylene chloride	ND	0.005
2-Chloroethyl vinyl ether	ND	0.020	Tetrachloroethene	ND	0.005
Acrolein	ND	0.10	Toluene	ND	0.005
Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND	0.005
Benzene	ND	0.002	trans-1,3- Dichloropropene	ND	0.005
Bromodichloromethane	ND	0.005	Trichloroethene	ΝĎ	0.005
Bromoform	ND	0.005			

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 Date of Analysis: 7/31/14





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP005, 7/29/14, 9:00 A.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP005	MQL	ANALYTE	SP005	MQL
1,2,4-Trichlorobenzene	ND	0.05	Benzidine	ND	0.005
1,2- Diphenylhydrazine	ND	0.05	Benzo(a)pyrene	· ND	0.005
2,4,6-Trichlorophenol	ND	0.05	Bis(2-chloroethoxy)methane	ND	0.05
2,4,Dichlorophenol	ND	0.05	Bis(2-chloroethyl)ether	ND	0.05
2,4-Dimethylphenol	ND	0.05	Bis(2-chloroisopropyl)ether	ND .	0.05
2,4-Dinitrophenol	ND	0.10	Diethyl phthalate	ND	0.05
2,4-Dinitrotoluene	ND	0.05	Hexachlorobenzene	. ND	0.05
2,6-Dinitrotoluene	ND	0.05	Hexachlorocyclopentadiene	ND	0.10
2-Chlorophenol	ND	0.05	Hexachloroethane	ND	0.05
2-Nitrophenol	ND .	0.10	Isophorone	ND	0.05
3,3-Dichlorobenzidine	ND	0.05	Naphthalene	ND	0.05
4,6-Dinitro-2-methylphenol	ND	0.10	Nitrobenzene	ND	0.05
4-Chloro-3-methylphenol	ND	0.10	N-Nitrosodimethylamine	ND	0.10
4-Nitrophenol	ND	0.10	Pentachlorophenol	ND	0.10
Acenaphthene	ND	0.005	Phenanthrene	ND	0.05
Acenaphthylene	ND	0.005	Phenol	ND	0.025
Anthracene	ND	0.005	Pyrene	ND	0.05
Azobenzene	ND	0.05			

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/5/14

Dilution Factor: 5





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Attention: Livi Isringhausen

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REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP005, 7/29/14, 9:00 A.M.

Units: μg/L (ppb) PESTICIDES

ANALYTE	SP005	MQL
Aldrin	ND	1.25
Chlorodane	ND	1.25
Dieldrin	ND	1.25
gamma-BHC	ND	1.25
Heptachlor epoxide	ND	.1.25

MQL: Minimum Quantitative Limit
ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: 3510C/8081B Date of Analysis: 8/1/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP006, 7/29/14, 10:10 A.M.

WASTEWATER COMPOSITE, SP006, 7/29/14, 10:10 A.M. - 4:10 P.M.

Units: mg/L Except As Noted

ANALYTE	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	8.96		150.1	7/29/14
Temperature, °C (G)	28.0		170.1	7/29/14
Biological Oxygen Demand (C)	16	5	5210 B	8/4/14
Chemical Oxygen Demand (C)	25	10	5220 D	7/30/14 -
Total Suspended Solids (C)	20	5	160.2	7/31/14
Oil & Grease (G)	ND	, 5	1664	7/29/14
Total Cyanide (G)	ND	0.01	335.4	8/4/14
Cadmium (C)	ND	0.01	200.8	8/7/14
Chromium (C)	ND	0.01 ·	200.8	8/7/14
Copper (C)	ND	0.01	200.8	8/7/14
Lead (C)	0.017	0.01	200.8	8/7/14
Nickel (C)	ND	0.01	200.8	8/7/14
Selenium (C)	ND "	0.01	200.8	8/7/14
Silver (C)	ND	. 0.01	200.8	8/7/14
Thallium (C)	ND	0.01	200.8	8/7/14
Zinc (C)	0.030	0.01	200.8	8/7/14
Mercury (C)	ND .	0.005	200.8	8/7/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP006, 7/29/14, 10:10 A.M.

Units: mg/L **VOLATILE ORGANIC COMPOUNDS**

Ointo. mg/L			*		
ANALYTE	SP006	MQL	ANALYTE	SP006	MQL
1,1,1-Trichloroethane	ND	0.005	Bromomethane	ND	0.010
1,1,2,2-Tetrachloroethane	ND	0.005	Carbon tetrachloride	, ND	0.005
1,1,2-Trichloroethane	ND	0.005	Chlorobenzene	ND	0.005
1,1-Dichloroethane	ND	0.005	Chloroethane	ND	0.010
1,1-Dichloroethene	ND	0.005	Chloroform	0.004 (J)	0.005
1,2-Dichlorobenzene	ND	0:005	Chloromethane	ND	0.010
1,2-Dichloroethane	NĎ	0.005	cis-1,3 – Dichloropropene	ND	0.005
1,2-Dichloropropane	ND	0.005	Dibromochloromethane	ND	0.005
1,3-Dichlorobenzene	ND	0.005	Ethylbenzene	0.028	0.005
1,4-Dichlorobenzene	ND	0.005	Methylene chloride	ND	0.005
2-Chloroethyl vinyl ether	ND	0.020	Tetrachloroethene	ND	0.005
Acrolein	ND	0.10	Toluene	ND	0.005
Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND	0.005
Benzene	ND	0.002	trans-1,3- Dichloropropene	ND	0.005
Bromodichloromethane	0.001 (J)	0.005	Trichloroethene	ND	0.005
Bromoform	ND	0.005			

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 Date of Analysis: 8/1/14

Dilution Factor: 1





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP006, 7/29/14, 10:10 A.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP006	MQL	ANALYTE	SP006	MQL
1,2,4-Trichlorobenzene	ND	0.094	Benzidine	ND	0.009
1,2- Diphenylhydrazine	ND	0.094	Benzo(a)pyrene	ND	0.009
2,4,6-Trichlorophenol	ND	0.094	Bis(2-chloroethoxy)methane	ND.	0.094
2,4,Dichlorophenol	ND	0.094	Bis(2-chloroethyl)ether	ND	0.094
2,4-Dimethylphenol	ND	0.094	Bis(2-chloroisopropyl)ether	ND	0.094
2,4-Dinitrophenol	.ND	0.188	Diethyl phthalate	ND	0.094
2,4-Dinitrotoluene	ND	0.094	Hexachlorobenzene	ND	0.094
2,6-Dinitrotoluene	ND	0.094	Hexachlorocyclopentadiene	ND	0.188
2-Chlorophenol	ND	0.094	Hexachloroethane	ND	0.094
2-Nitrophenol	. ND	0.188	Isophorone	ND	0.094
3,3-Dichlorobenzidine	ND	0.094	Naphthalene	ND	0.094
4,6-Dinitro-2-methylphenol	ND	0.188	Nitrobenzene	ND	0.094
4-Chloro-3-methylphenol	ND	0.188	N-Nitrosodimethylamine	ND	0.094
4-Nitrophenol	ND	0.188	Pentachlorophenol	ND	0.094
Acenaphthene	ND	0.009	Phenanthrene	ND	0.094
Acenaphthylene	ND	0.009	Phenol	ND	0.047
Anthracene	ND	0.009	Pyrene	ND	0.094
Azobenzene	ND	0.094			

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/5/14 Dilution Factor: 10



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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP006, 7/29/14, 10:10 A.M.

Units: µg/L (ppb) PESTICIDES

ANALYTE	SP006	MQL
Aldrin	ND	1.25
Chlorodane	ND	1.25
Dieldrin	ND	1.25
gamma-BHC	ND	1.25
Heptachlor epoxide	ND	1.25

MQL: Minimum Quantitative Limit ND None Detected Above MQL Elevated MQL Due to Extract Composition Test Method: 3510C/8081B Date of Analysis: 8/1/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/29/14, 9:20 A.M.

WASTEWATER COMPOSITE, SP007, 7/29/14, 9:20 A.M. - 3:50 P.M.

Units: mg/L Except As Noted

ANALYTE	SP007	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	7.99		150.1	7/29/14
Temperature, °C (G)	29.0		170.1	7/29/14
Biological Oxygen Demand (C)	20	5	5210 B	8/4/14
Chemical Oxygen Demand (C)	38	. 10	5220 D	7/30/14
Total Suspended Solids (C)	74	5	160.2	7/31/14
Oil & Grease (G)	5	5	1664	7/29/14
Total Cyanide (G)	ND	0.01	335.4	8/4/14
Cadmium (C)	ND	0.01	200.8	8/7/14
Chromium (C)	0.087	0.01	200.8	8/7/14
Copper (C)	0.026	0.01	200.8 .	8/7/14
Lead (C)	0.021	0.01	200.8	8/7/14
Nickel (C)	0.056	0.01	200.8	8/7/14
Selenium (C)	ND	0.01	200.8	8/7/14
Silver (C)	ND	0.01	200.8	8/7/14
Thallium (C)	ND	0.01	200.8	8/7/14
Zinc (C)	0.11	0.01	200.8	8/7/14
Mercury (C)	ND	0.005	200.8	8/7/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 7/29/14, 9:20 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	MQL	ANALYTE	SP007	MQL
1,1,1-Trichloroethane	ND	0.005	Bromomethane .	ND	0.010
1,1,2,2-Tetrachloroethane	ND	0.005	Carbon tetrachloride	ND	. 0.005
1,1,2-Trichloroethane	ND	0.005	Chlorobenzene	ND	0.005
1,1-Dichloroethane	ND	0.005	Chloroethane	ND	0.010
1,1-Dichloroethene	ND	0.005	Chloroform	ND	0.005
1,2-Dichlorobenzene	ND	0.005	Chloromethane	ND	0.010
1,2-Dichloroethane	ND	0.005	cis-1,3 – Dichloropropene	NÔ · .	0.005
1,2-Dichloropropane	. ND	0.005	Dibromochloromethane	ND	0.005
1,3-Dichlorobenzene	ND	0.005	Ethylbenzene	ND	0.005
1,4-Dichlorobenzene	ND	0.005	Methylene chloride	ND	0.005
2-Chloroethyl vinyl ether	ND	0.020	Tetrachloroethene	ND	0.005
Acrolein	ND	0.10	Toluene	ND	0.005
Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND.	0.005
Benzene	ND	0.002	trans-1,3- Dichloropropene	ND .	0.005
Bromodichloromethane	ND-	0.005	Trichloroethene	ND	0.005
Bromoform	ND	0.005			

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 8/1/14

·Dilution Factor: 1





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 7/29/14, 9:20 A.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	MQL	ANALYTE	SP007	MQL
1,2,4-Trichlorobenzene	ND	0.024	Benzidine	ND	0.024
1,2- Diphenylhydrazine	ND	0.237	Benzo(a)pyrene	ND	0.024
2,4,6-Trichlorophenol	ND	0.237	Bis(2-chloroethoxy)methane	ND	0.024
2,4,Dichlorophenol	ND	0.237	Bis(2-chloroethyl)ether	· ND	0.024
2,4-Dimethylphenol	ND	0.024	Bis(2-chloroisopropyl)ether	ND	0.024
2,4-Dinitrophenol	ND	0.474	Diethyl phthalate	ND	0.024
2,4-Dinitrotoluene	ND	0.237	Hexachlorobenzene	ND	0.024
2,6-Dinitrotoluene	ND	0.237	Hexachlorocyclopentadiene	ND	0.474
2-Chlorophenol	ND	0.024	Hexachloroethane	ND	0.024
2-Nitrophenol	ND	0.474	Isophorone	ND	0.024
3,3-Dichlorobenzidine	ND	0.237	Naphthalene	ND	0.024
4,6-Dinitro-2-methylphenol	ND	0.118	Nitrobenzene	ND	0.024
4-Chloro-3-methylphenol	ND	0.118	N-Nitrosodimethylamine	ND	0.024
4-Nitrophenol	ND	0.474	Pentachlorophenol	ND	0.024
Acenaphthene	- ND	0.024	Phenanthrene	ND	0.024
Acenaphthylene	ND	0.024	Phenol	ND	0.024
Anthracene	ND	0.024	Pyrene	ND	0.024
Azobenzene	ND	0.024			

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/5/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 7/29/14, 9:20 A:M.

Units: μg/L (ppb) PESTICIDES

ANALYTE	SP007	MQL
Aldrin	ND	1.25
Chlorodane	ND	1.25
Dieldrin	ND	1.25
gamma-BHC	ND	1.25
Heptachlor epoxide	ND	1.25

MQL: Minimum Quantitative Limit
ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: 3510C/8081B Date of Analysis: 8/1/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP008, 7/29/14, 9:30 A.M.

WASTEWATER COMPOSITE, SP008, 7/29/14, 9:30 A.M. - 3:55 P.M.

Units: mg/L Except As Noted

ANALYTE	SP008	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	6.92		150.1	7/29/14
Temperature, °C (G)	27.0		170.1	7/29/14
Biological Oxygen Demand (C)	630	25	5210 B	8/4/14
Chemical Oxygen Demand (C)	1310	50	5220 D	7/30/14
Total Suspended Solids (C)	732	5	160.2	7/31/14
Oil & Grease (G)	61	5	1664	7/29/14
Total Cyanide (G)	ND	0.01 🦽	335.4	8/4/14
Cadmium (C)	ND	0.01	200.8	8/7/14
Chromium (C)	0.015	0.01	200.8	8/7/14 ,
Copper (C)	0.053	0.01	200.8	8/7/14
Lead (C)	0.018	0.01	200.8	8/7/14
Nickel (C)	√0.013	0.01	200.8	8/7/14
Selenium (C)	ND	0.01	200.8	8/7/14
Silver (C)	0.023	0.01	200.8	8/7/14
Thallium (C)	ND -	0.01	200.8	8/7/14
Zinc (C)	0.180	0.01	200.8	8/7/14
Mercury (C)	ND	0.005	200.8	8/7/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP008, 7/29/14, 9:30 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

Omis. mg/L					
ANALYTE	SP008	MQL	ANALYTE	SP008	MQL
1,1,1-Trichloroethane	ND	0.005	Bromomethane	ND	0.010
1,1,2,2-Tetrachloroethane	ND	0.005	Carbon tetrachloride	ND	0.005
1,1,2-Trichloroethane	ND	0.005	Chlorobenzene	ND	0.005
1,1-Dichloroethane	ND	0.005	Chloroethane	ND	0.010
1,1-Dichloroethene	ND	0.005	Chloroform	0.0027 (J)	0.005
1,2-Dichlorobenzene	ND	0.005	Chloromethane	ND 5	0.010
1,2-Dichloroethane	ND	0.005	cis-1,3 – Dichloropropene	ND	0.005
1,2-Dichloropropane	ND	0.005	Dibromochloromethane	ND	0.005
1,3-Dichlorobenzene	ND	0.005	Ethylbenzene	ND	0.005
1,4-Dichlorobenzene	ND	0.005	Methylene chloride	ND	0.005
2-Chloroethyl vinyl ether	ND	0.020	Tetrachloroethene	ND ·	0.005
Acrolein	ND	0.10	Toluene	ND	0.005
Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND	0.005
Benzene	ND	0.002	trans-1,3- Dichloropropene	ND:	0.005
Bromodichloromethane	ND	0.005	Trichloroethene	ND	0.005
Bromoform	ND	0.005		· · · · · · · · · · · · · · · · · · ·	

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 Date of Analysis: 8/1/14 Dilution Factor: 1





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP008, 7/29/14, 9:30 A.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

Onits: mg/L	<u> </u>	60 (1 1 Mar 100 40	ACAMIC COMPOUNDS		
ANALYTE	SP008	MQL	ANALYTE	SP008	MQL
1,2,4-Trichlorobenzene	ND	0.025	Benzidine	ND	0.025
1,2- Diphenylhydrazine	ND	0.25	Benzo(a)pyrene	ND	0.025
2,4,6-Trichlorophenol	ND	0.25	Bis(2-chloroethoxy)methane	ND	0.025
2,4,Dichlorophenol	ND	0.25	Bis(2-chloroethyl)ether	ND	0.025
2,4-Dimethylphenol	ND	0.025	Bis(2-chloroisopropyl)ether	ND	0.025
2,4-Dinitrophenol	ND	0.50	Diethyl phthalate	ND	0.025
2,4-Dinitrotoluene	ND	0.25	Hexachlorobenzene	ND	0.025
2,6-Dinitrotoluene	ND	0.25	Hexachlorocyclopentadiene	ND	0.50
2-Chlorophenol	ND	0.025	Hexachloroethane	ND	0.025
2-Nitrophenol	ND	0.50	Isophorone	ND	0.025
3,3-Dichlorobenzidine	ND	0.25	Naphthalene	ND	0.025
4,6-Dinitro-2-methylphenol	ND	0.125	Nitrobenzene	ND	0.025
4-Chloro-3-methylphenol	ND	0.125	N-Nitrosodimethylamine	ND	0.025
4-Nitrophenol	ND	0.50	Pentachlorophenol	ND	0.025
Acenaphthene	ND	0.025	Phenanthrene	ND	0.025
Acenaphthylene	ND	0.025	Phenol	ND	0.025
Anthracene	ND	0.025	Pyrene	· ND	0.025
Azobenzene	ND	0.025			

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/5/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP008, 7/29/14, 9:30 A.M.

Units: μg/L (ppb) PESTICIDES

ANALYTE	SP008	MQL
Aldrin	ND	1.25
Chlorodane	ND	1.25
Dieldrin	ND	1.25
gamma-BHC	ND	1.25
Heptachlor epoxide	ND	1.25

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: 3510C/8081B Date of Analysis: 8/4/14 Dilution Factor: 25





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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP009, 7/29/14, 9:40 A.M.

WASTEWATER COMPOSITE, SP009, 7/29/14, 9:40 A.M. - 4:00 P.M.

Units: mg/L Except As Noted

ANALYTE	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS
pH (Std. pH Units) (G)	8.16		150.1	7/29/14
Temperature, °C (G)	29.5		170.1	7/29/14
Biological Oxygen Demand (C)	187	5	5210 B	8/4/14
Chemical Oxygen Demand (C)	377	10	5220 D	7/30/14
Total Suspended Solids (C)	208	5	160.2	7/31/14
Oil & Grease (G)	28	, 5	1664	7/29/14
Total Cyanide (G)	ND	0.01	335.4	8/4/14
Cadmium (C)	ND	0.01	200.8	8/7/14
Chromium (C)	ND	. 0.01	200.8	8/7/14
Copper (C)	0.041	0.01	200.8	8/7/14
Lead (C)	0.017	0.01	200.8	8/7/14
Nickel (C)	ND	0.01	200.8	8/7/14
Selenium (C)	ND ⁻	0.01	200.8	8/7/14
Silver (C)	0.080	0.01	200.8	8/7/14
Thallium (C)	ND	0.01	200,8	8/7/14
Zinc (C)	0.084	0.01	200.8	8/7/14
Mercury (C)	ND	0.005	200.8	8/7/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085 Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 September 9, 2014 Lab No. 14E-1348 Invoice No. 188206 P.O. No. 2920311Y Page 26 of 28

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP009, 7/29/14, 9:40 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP009	MQL	ANALYTE	SP009	MQL
1,1,1-Trichloroethane	ND	0.005	Bromomethane	ND	0.010
1,1,2,2-Tetrachloroethane	ND .	0.005	Carbon tetrachloride	ND	0.005
1,1,2-Trichloroethane	ND	0.005	Chlorobenzene	ND	0.005
1,1-Dichloroethane	ND	0.005	Chloroethane .	ND	0.010
1,1-Dichloroethene	ND	0.005	Chloroform	0.0014(J)	0.005
1,2-Dichlorobenzene	ND	0.005	Chloromethane	ND	0.010
1,2-Dichloroethane	ND	0.005	cis-1,3 – Dichloropropene	ND	0.005
1,2-Dichloropropane	ND	0.005	Dibromochloromethane	ND	0.005
1,3-Dichlorobenzene	ND	0.005	Ethylbenzene	ND	0.005
1,4-Dichlorobenzene	ND	0.005	Methylene chloride	ND	0.005
2-Chloroethyl vinyl ether	ND	0.020	Tetrachloroethene	ND	0.005
Acrolein	. ND	0.10	Toluene	ND	0.005
Acrylonitrile	ND	0.005	trans-1,2-Dichloroethene	ND	0.005
Benzene	ND	0.002	trans-1,3- Dichloropropene	ND	0.005
Bromodichloromethane	ND `	0.005	Trichloroethene	ND	0.005
Bromoform .	ND	0.005			

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 Date of Analysis: 8/1/14 Dilution Factor: 1





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WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 September 9, 2014 Lab No. 14E-1348 Invoice No. 188206 P.O. No. 2920311Y Page 27 of 28

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP009, 7/29/14, 9:40 A.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

Onits. hig/L	OFINI. A C	m/////	DRUMINIC COMPOUNDS		
ANALYTE	SP009	MQL	ANALYTE	SP009	MQL
1,2,4-Trichlorobenzene	ND	0.025	Benzidine	ND	0.025
1,2- Diphenylhydrazine	ND	0.25	Benzo(a)pyrene	ND	0.025
2,4,6-Trichlorophenol	ND	0.25	Bis(2-chloroethoxy)methane	ND	0.025
2,4,Dichlorophenol	ND	0.25	Bis(2-chloroethyl)ether	ND	0.025
2,4-Dimethylphenol	ND	0.025	Bis(2-chloroisopropyl)ether	ND	0.025
2,4-Dinitrophenol	ND	0.50	Diethyl phthalate	ND	0.025
2,4-Dinitrotoluene	ND	0.25	Hexachlorobenzene	ND	0.025
2,6-Dinitrotoluene	ND	0.25	Hexachlorocyclopentadiene	ND	0.50
2-Chlorophenol	. ND	0.025	Hexachloroethane	ND	0.025
2-Nitrophenol	ND	0.50	Isophorone	ND	0.025
3,3-Dichlorobenzidine	ND	0.25	Naphthalene	ND	0.025
4,6-Dinitro-2-methylphenol	ND	0.125	Nitrobenzene	ND	0.025
4-Chloro-3-methylphenol	ND	0.125	N-Nitrosodimethylamine	ND	0.025
4-Nitrophenol	ND	0.50	Pentachlorophenol	ND	0.025
Acenaphthene	ND	0.025	Phenanthrene	ND	0.025
Acenaphthylene	ND	0.025	Phenol	ND	0.025
Anthracene	ND	0.025	Pyrene	ND	0.025
Azobenzene	ND.	0.025	·		

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: EPA 600/625 Date of Analysis: 8/1/14 Dilution Factor: 25





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 September 9, 2014 Lab No. 14E-1348 Invoice No. 188206 P.O. No. 2920311Y Page 28 of 28

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP009, 7/29/14, 9:40 A.M.

Units: µg/L (ppb) PESTICIDES

ANALYTE	SP009	MQL
Aldrin '	ND	1.25
Chlorodane	ND	1.25
Dieldrin	ND	1.25
gamma-BHC	ND	1.25
Heptachlor epoxide	, ND	1.25

MQL: Minimum Quantitative Limit
ND None Detected Above MQL

Elevated MQL Due to Extract Composition

Test Method: 3510C/8081B Date of Analysis: 8/1/14 Dilution Factor: 25

> Steve Root, Manager Environmental Testing

SR/bnd



INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

В	TOTAL MONTH OF THE TOTAL		,
	All permittees must sign and complete the information below:		٠.
	I certify under penalty of Law that this document and all attachments were pre a system designed to assure that qualified personnel properly gather and eval person or persons who manage the system, or those persons directly respons is, to the best of my knowledge and belief, true, accurate, and complete. I am information, including the possibility of fine and imprisonment for knowing violations.	uate the infor ible for gathe aware that th	mation submitted. Based on my inquiry of the ring the information, the information submitted
	Print or type name of signing official. Livi Isringhausen		
	Title: Environmental Compliance Manager	Telephone: _	(314)362-6735
	Signature Management of the Signature Management of Signature Management of Signature Management of Signature Management of Signature Manageme	Date:	09/11/2014
1			

METROPOLITAN SEWER DISTRICT

INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

1024-3530-00

ranı i	PA	$\mathbf{R}\mathbf{T}$	I:
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IDENTIFYING INFORMATION

Company Name: Washingto	on University Medical Scho	ol		
Permit No:				
Premise Address: 660 South	Euclid, St. Louis, MO 631	10		
Reporting Period: 2014	[(JAN-MAR)	(APR-JUN)	[(JUL-SEP)	OCT-DEC)

PART II:

RECORD OF DISPOSAL OF RADIOACTIVE MATERIALS TO THE SEWER

RADIONUCLIDE	ACTIVITY DISCHARGED (millicuries)
C-14	0.0501
Ca-45	0.0650
H-3	1.0345
H-3w	0.0090
I-125	0.1457
I-131	0.0205
P-32	0.0788
S-35	0.0326
TOTAL ACTIVITY DISCHARGE	ED: 1.4362

PART III:

CERTIFICATION STATEMENTS

Place your initials in the box under Item A.

Everyone must complete the information under Items A & B and sign this report.

A. CERTIFICATION OF COMPLIANCE WITH STATE AND FEDERAL REGULATIONS



I certify that to the best of my knowledge & belief, all requirements of 10 CFR Part 20.2003 and 19 CSR Part 20-10.090 governing disposal by release into sanitary sewage for material regulated by the Nuclear Regulatory Commission and the Missouri Department of Health, respectively, have been met for the period covered by this report.

B. RADIOACTIVE MATERIALS DISCHARGE REPORT CERTIFICATION

I certify under penalty of law that this document and all atachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print/Type name of signing official: K	Carla Spafford	
Fitle: Radiation Safety Specialist		Telephone: (314) 362-4968
2 2 2/10		
Signature: MIN A		Date: 07/15/2014
11000 of 1/1)	RECEIVED	RECEIVED RE: radrpt.doc 2/00

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DIVISION OF ENVIRONMENTAL COMPLIANCE

JUL 17 2014

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Washington University in St. Louis



ENVIRONMENTAL HEALTH & SAFETY

To:

Washington University School of Medicine

Contingency Plan Holder

1024-3530-00

Date:

June 25, 2014

Please find attached the Washington University, School of Medicine, St. Louis, Missouri Contingency Plan, In the Event of a Hazardous Chemical or Biological Release Revision Date: June 2014

This plan has been provided to you for future reference in the event of your involvement with a hazardous chemical or biological agent release at the Washington University, School of Medicine Campus, location. Please keep this document in an easily accessible location for quick reference in the event of an emergency.

Please be advised that this updated plan includes revision of the campus map to include the new BJCIH building.

Should you have any questions regarding this plan, please feel free to contact:

WU Environmental Compliance Officer: Linda Vishino (314)935-7864

WU Environmental Compliance Manager: Livi Isringhausen (314)362-6735

Thank you in advance for your assistance in this matter.

Sincerely,

Livi Isringhausen

Washington University School of Medicine

Environmental Compliance Manager

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DIVISION OF

Washington University in St. Louis, Campus Box 8229, 660 South Euclid, St. Louis, MO 63170 MENTAL COMPLIANCE (314) 362-6735, Fax (314) 362-1095, isringhausenm@wusm.wustl.edu, http://ehs.wustl.edu/

Washington University School of Medicine

Contingency Plan

In the event of a Hazardous Chemical or Biological Release



Campus Box 8229 660 S. Euclid Avenue St. Louis, MO 63110 (314) 362-6816 RECEIVED

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DIVISION OF ENVIRONMENTAL COMPLIANCE Revised 06/24/2014

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INTRODUCTION

This Contingency Plan has been developed for the Environmental Health & Safety program at the Washington University School of Medicine (WUSM) complex in St. Louis, Missouri. The Unwanted Material and Hazardous Waste Management Program provides organized collection, storage and disposal services for chemicals and infectious materials from the many departments and principal investigators who administer the WUSM clinical, research and student laboratories. The Environmental Health & Safety program provides for laboratory safety and regulatory compliance with safety and environmental issues.

The Contingency Plan outlines specific emergency response actions to be taken to safely respond to a spill or fire involving surplus chemicals, infectious materials or hazardous wastes; either during accumulation, use, handling, storage or disposal of these materials in the research laboratories or at the Hazardous Materials Management Building (HMMB) at WUSM. The plan lists the telephone numbers of emergency coordinators, facility contacts, local fire and police departments, ambulance services and medical personnel who will provide assistance to WUSM in an emergency. Evacuation plans, depending upon the nature and location of the emergency, are included. Emergency equipment availability and locations are also described in the Contingency Plan.

If an emergency develops, the person making the discovery is instructed to contact the Environmental Health & Safety office at 362-6816 or WUSM Protective Services at 362-HELP, who will then contact the Emergency Coordinator using the "Spill Beeper" telephone number. A list of campus staff who are to be notified in the case of an emergency is included (Figure I). The Radiation Safety program, Fire Safety program, and Disaster Plan are included by reference. If conflicting statements occur, the Contingency Plan or the more stringent requirements take precedent.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

Figure I

EMERGENCY COORDINATORS

In the event of an ERL 2 (<u>intermediate</u> or <u>large</u> release) contact Washington University School of Medicine Protective Services at (314) 362-2698 or (314) 362-HELP(4357). WUSM Protective Services should contact the following responders in the order below and then the emergency response phone at (314) 790-5317.

(I) Primary contact - Washington University School of Medicine Protective Services (314) 362-2698 or (314) 362-HELP(4357)

(2) Second Contact- Linda Vishino - Environmental Compliance Officer

Office phone: (314) 935-7864 Cell phone: (314) 660-0085 Home phone (314) 660-0085

Office Address

7509 Forsyth Blvd, Suite I30

St. Louis, MO 63105

Environmental Health and Safety Office

Home Address 3364 Moselle

Union, MO 63084

(3) Third Contact -Livi Isringhausen -Environmental Compliance Manager - Medical School

Office phone: (314) 362-6735 Cell phone: (314) 608-8551 Home phone (618) 410-6140

Office Address

660 South Euclid

St. Louis, MO 63110

Home Address

I Bluff Drive

Belleville, IL 62223

(4) Fourth Contact - Bruce Backus- Assistant Vice Chancellor Environmental Health and Safety

Office phone: (314) 935-9882 Cell phone: (314) 302-0466 Home phone (314) 909-9965

Office Address

7509 Forsyth Blvd, Suite I30

St. Louis, MO 63105

Environmental Health and Safety Office

Home Address

446 Greenleaf Drive

Kirkwood, MO 63122

(5) Fifth Contact- Donna Hall -Environmental Compliance Manager - Danforth Campus

Office phone: (314) 935-4650 Cell phone: (314) 223-0147 Home phone (314) 344-8195

Office Address

I Brookings Drive

Millbrook Facilities Building

St. Louis, MO 63130

Home Address

12058 Glenrose Drive

Maryland Heights, MO 63043

WUSM ADMINISTRATION

Facilities Management Office

Melissa Hopkins

Director, Facilities Management

(314) 362-4970

Business Address

Room II8, Mc Donnell Bldg.

Public Relations Office

Don Clayton, Assoc. Vice Chancellor

for Medical Public Affairs

(314) 362-8258

Business Address

4444 Forest Parkway

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Continued on next page

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

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Figure I (continued)

EMERGENCY CONTACT NUMBERS

WUSM Protective Services	(314)362-4357	
(Will notify emergency agencies)	,	
Ambulance Service	(314)362-4357	
Barnes Care	(314) 747-5800	
Barnes Emergency Room	(314) 362-9123	
Eye Clinic	(314) 362-3937	(emergency direct line)
Environmental Health & Safety	362-6816	PAGER: 836-2877
Radiation Safety	314-299-1322	
St. Louis Fire Department	(314)362-4357	
St. Louis Police Department	(314)362-4357	
St. Louis Health Department	(314) 612-5150	Pamela Rice Walker,
MPA Director of Health , Melba R. Moore, MS H	ealth Commissioner	
St. Louis Metropolitan Sewer District (MSD)	(314) 728-	6200 or
		6200 or
St. Louis Metropolitan Sewer District (MSD)	(314) 728-	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline	(314) 728- 768-6260	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control	(314) 728- 768-6260	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control LEPC	(314) 728- 768-6260 (314) 613-7300	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control LEPC Local Emergency Planning Committee	(314) 728- 768-6260 (314) 613-7300 (314) 534-2244	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control LEPC Local Emergency Planning Committee National Response Center	(314) 728- 768-6260 (314) 613-7300 (314) 534-2244 I-800-424-8802	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control LEPC Local Emergency Planning Committee National Response Center MDNR Environmental Emergencies	(314) 728- 768-6260 (314) 613-7300 (314) 534-2244 1-800-424-8802 (573) 634-2436	6200 or
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control LEPC Local Emergency Planning Committee National Response Center MDNR Environmental Emergencies US EPA Region VII	(314) 728- 768-6260 (314) 613-7300 (314) 534-2244 I-800-424-8802 (573) 634-2436 (913) 236-3778	PAGER 790-7968
St. Louis Metropolitan Sewer District (MSD) MSD Emergency Hotline St. Louis Air Pollution Control LEPC Local Emergency Planning Committee National Response Center MDNR Environmental Emergencies US EPA Region VII CHEMTREC	(314) 728- 768-6260 (314) 613-7300 (314) 534-2244 I-800-424-8802 (573) 634-2436 (913) 236-3778 I-800-424-9300	

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DIVISION OF ENVIRONMENTAL COMPLIANCE

GENERAL DESCRIPTION OF THE FACILITY

Identification, Location

Facility Name: Washington University School of Medicine

Owner/Operator/Agent: Larry J Shapiro, Dean, Executive Vice Chancellor Room 1800, Ist Floor North Blg., Box 8003 Washington University School of Medicine 660 S. Euclid Ave. St. Louis, MO 63110 Phone: (314) 362-6827

Physical Address:
Washington University School of Medicine (WUSM)
660 South Euclid Avenue
St. Louis, Missouri, 63110
County: St. Louis
Longitude: -90.26303
Latitude: 38.63454

Mailing Address: Contact: Livi Isringhausen Washington University School of Medicine 660 South Euclid Avenue, Box 8229 St. Louis, Missouri, 63110 Ph. (314) 362-6735 Fax (314) 362-1995

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PO MOISIVIC EMALIAMON JATHEMMORIVES Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release

Function of the Facility:

Washington University School of Medicine (WUSM) is an educational and biomedical research facility included in the Washington University Medical Center. The facility is a single site research institution, consisting of contiguous or adjacent buildings, including a Hazardous Materials Management Building (HMMB) for the short-term storage of hazardous, biological, and radioactive waste. Hazardous chemicals and biological materials are used in biomedical research and education within the medical facility. Some materials used in the clinical, research, and student laboratories are defined by the Missouri Department of Natural Resources and the US EPA as infectious materials and RCRA hazardous waste. About 1,700 individual laboratories participate in the Environmental Health & Safety program. In addition, the university owns and operates an onsite power generation plant and several emergency power generators. These power generation units are fueled by four underground storage tanks and seventeen aboveground storage tanks. The storage tank locations are listed in the Washington University School of Medicine SPCC plan.

Used chemicals and equipment are managed as part of a WUSM hazardous waste management program. The University adopted the RCRA Subpart K regulations (EPA lab Rule) July I, 2013. All potential hazardous wastes generated in the l;aboratories will be labeled "Unwanted Material" and managed according to the WUSM Laboratory Management Plan. Following the receipt of a laboratory pick-up request which describes the regulated material in detail, in-house collection and relocation is arranged to a centralized storage facility, located at the northeast end of the WUSM complex at 4500 Parkview (corner of Duncan and Taylor), St. Louis, Missouri, 63110. Infectious materials are containerized at the point of generation in DOT approved containers, sealed and shipped offsite to Stericycle for subsequent disposal by incineration.

In the HMMB, a technician determines whether a surplus chemical must be designated a hazardous waste with ultimate disposal off-site at a permanent hazardous waste disposal facility.

The HMMB and campus laboratories have been designed for safe storage and handling of potentially hazardous materials. Fire protection and separation of incompatible materials according to DOT, US EPA, and OSHA classifications are provided throughout WUSM. WUSM meets all applicable National Fire Protection Association (NFPA) and City of St. Louis building code requirements.

Note: See Attachment I for a map of the Washington University Medical Center.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release

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TYPES OF POTENTIAL EMERGENCIES

There are two levels of emergency response, emergency response level I(ERLI) and emergency response level 2 (ERL2). ERLI is a spill of hazardous or biological material whose containment and/or remediation is within the capabilities of the in-house EH&S spill response team. An ERLI incident is one where there is little or no immediate danger to human health and the environment. An ERL2 is an incident that requires emergency response by emergency response agencies outside the university.

ERLI

A determination of the emergency response level is a judgement made by the initial EH&S responder. In general ERLI is not an emergency response but a spill cleanup and remediation that can be handled by three people or less. ERLI responses may be the initial response or post ERL2 response. The following are potential ERLI incidents:

Small fire

Small fire is defined as a fire contained within a trash receptacle, waste paper basket or other small container that can be extinguished using a small hand-held fire extinguisher by the occupant of the laboratory or office. It is probably small enough that the smoke detector would not sound and the fire would not be reported until after it was extinguished.

Small hazardous chemical or biological release

In general, chemical spills which are small in quantity (up to 55 gallons), that have minimal potential impact on surroundings and which do not involve fire or injuries are most likely to occur in either the research areas or the HMMB. In addition, small biological material releases are considered to be a few milliliters or less of a viable microorganism in a biological cabinet in a restricted area that can be remediated with bleach by the technician observing the spill.

ERL2

An ERL2 usually involves a fire, hazardous gas release, extremely dangerous chemical release, or a chemical or biological spill that is out of control or exceeds the capabilities of the in-house EH&S staff. The following are potential ERL2 incidents:

Intermediate hazardous biological or chemical release

The intermediate chemical release will consist of spills greater than one 55 gallon drum, spills involving a small fire (confined to a single laboratory or work area) or injuries resulting from a chemical release. An intermediate biological material release will consist of a release outside the biological cabinet of a few milliliters of viable microorganism that results in the exposure of the individual(s) in the restricted laboratory to the toxic agent. However, the release is confined to the restricted laboratory or work area. If it is determined by the initial EH&S responder that this can be appropriately handled by EH&S, this may be downgraded to an ERLI.

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Washington University School of Medicine
Contingency Plan: In the event of a hazardous chemical or biological release

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Large hazardous biological or chemical release

This is a chemical release with fire and/or injuries that involves more than one laboratory or work area, a floor of a building or a complete building. An intermediate (see above) type of release that is out of control would probably develop into an ERL2 incident. An ERL2 release of hazardous biological material is defined as the release of viable biological agents from the restricted facility in a manner that results in the exposure or possible exposure of other occupants of the floor or building.

Eminently dangerous situation

The EH&S initial responder will declare an ERL2 and call Protective Services (362-HELP) and request the St. Louis Fire Department if ANY of the following conditions are met:

- An un-extinguished fire of any size
- A spill of a flammable chemical:

If 10% of the LEL is exceeded

Greater than I gallon of a flammable with an NFPA flammability rating of 3 or 4 in any area Greater than 0.5 gallon of a flammable with an NFPA flammability rating of 3 or 4 in an unventilated area If any volume is at risk of coming into contact with an ignition source or incompatible compound

■ A release of a toxic chemical:

If 10% of IDLH is reached
If the compound has a PEL/TLV of 10 ppm or less

■ A release of a reactive chemical:

If it has an NFPA reactivity rating of 4
If there is a risk of contact with incompatible chemicals or incompatible physical hazards

■ A release of a corrosive chemical:

Of more than I gallon

A release of any amount of the following compounds:

HF (Hydrogen Fluoride Gas)

Phosgene

Mustard Gas

Any Zone A Inhalation Hazard

Major disaster

Major disaster is defined as resulting from an earthquake, tornado or explosion, in which several buildings have either structural damage or major fire and hazardous biological or chemical releases that result from the disaster. Refer to the university Disaster Plan for further information.

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BUILDING SPECIFIC HAZARD INFORMATION

The emergency coordinator on the scene will be trained and have access to building specific hazard information. If the St. Louis Fire Department or other outside agency is involved in the incident, the emergency coordinator will serve as a consultant in this area. Facilities Management personnel will provide floor plans and building specific information to the emergency coordinator and responding agencies.

IMPLEMENTATION OF THE CONTINGENCY PLAN

The Contingency Plan will be implemented during or following an ERL2 incident and at the discretion of the Emergency Response Coordinator in the following conditions:

Fire and/or Explosions

A fire causes the release of toxic fumes.

The fire spreads and could possibly ignite materials at other locations on site or could cause heat-induced explosions.

The fire could possibly spread to off-site areas.

Use of water or water and chemical fire suppressant could result in contaminated runoff.

An imminent danger exists that an explosion could occur, causing a safety hazard because of flying fragments or shock waves.

An imminent danger exists that an explosion could ignite other hazardous materials at the facility.

An imminent danger exists that an explosion could result in release of toxic material.

An explosion has occurred.

Spills or Material Releases

The spill could result in release of flammable liquids or vapors, thus causing a fire or gas explosion hazard (see eminently dangerous situation above).

The spill could cause the release of viable microorganisms, toxic liquids or fumes (see eminently dangerous situation above).

The spill can be contained on site, but the potential exists for ground water contamination or airborne exposure to hazardous chemical or infectious agents.

The spill cannot be contained on site, resulting in off-site soil contamination and/or ground or surface water U ∃ V |pollution and/or airborne exposure to infectious agents.

Severe Weather, Damage or Earthquake

10 Aftiweather damage results in a material release, then see spills or materials releases above. Washington University School of Medicine

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Contingency Plan: In the event of a hazardous chemical or biological release

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If fire and/or explosion is a secondary consequence, then see fire and/or explosions above.

APPLICATION OF THE CONTINGENCY PLAN TO OTHER MEMBERS OF THE MEDICAL CENTER

Barnes-Jewish Hospital, and St. Louis Children's Hospital are included in this contingency plan. The School of Medicine has laboratories and hazardous biological and chemical materials in buildings owned and/or operated by these institutions. Details of the actions to be implemented are identified in Appendix 2.

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SUMMARY OF THE DUTIES OF THE EMERGENCY RESPONSE COORDINATORS

General

Telephone numbers of the primary Emergency Response Coordinator and alternates are listed in the Contingency Plan (Figure I) and are posted in the HMMB, the Environmental Health & Safety office and at the Protective Services Command Post.

The coordinators will have a good working knowledge of locations of extremely hazardous materials or large volumes (over 55 gallons) of flammable liquids and gases.

The primary Emergency Response Coordinator or ranking secondary coordinator will decide if the Contingency Plan should be implemented during an emergency unless the existence of fire or injuries require the immediate contact of the emergency response agencies. If there is a fire, or if there are injuries, WUSM Protective Services will call 911 and report the emergency.

The coordinator on call will have full responsibility for coordination of all actions during an emergency, including but not limited to, control of the release, remedial actions, evacuations, notifications and reports unless the Contingency Plan has been activated and the fire department summoned. In the event that the fire department has been summoned, the Fire Department Hazmat Team will assume responsibility and the Emergency Response Coordinator(s) will serve as technical advisers to the incident commander.

The ranking secondary Emergency Response Coordinator shall act as the primary Emergency Response Coordinator in the absence of the primary coordinator.

If the emergency requires 911 activation, an Emergency Response Coordinator and Protective Services Officer shall meet the Hazmat Team of the fire department at the entrance to the affected building. The Emergency Response Coordinator shall accompany the fire department Hazmat Team to the location of the emergency to provide technical information regarding the nature of the biological or chemical release. The Protective Services Officer will remain at the entrance to the facility to provide Protective Services and radio contact for those at the scene. The Building Services Department shall send maintenance staff to the location of the Protective Services Officer to assist by deactivating or reactivating building systems as required.

Small Fire (ERLI)

The Emergency Response Coordinator shall be called by the Protective Services Officer at the Command Post.

The Emergency Response Coordinator shall determine if there was chemical involvement in the fire and shall investigate the origin of the fire and assess any damage, biological or chemical material releases that may have resulted.

The Emergency Response coordinator shall provide a written report of the incident on the form provided.

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'Small Chemical or Biological Release (ERLI)

The coordinator on call will evaluate the release and related hazards and using his/her best judgement, will decide if the emergency requires implementation of the Contingency Plan.

Using the necessary personal protective equipment and spill cleanup equipment, the coordinator will contain the spill and effect cleanup.

The coordinator will act to limit the impact of the release on the environment.

The coordinator will relocate spilled materials and contaminated materials used to remediate the spill to the HMMB.

The coordinator will attempt to keep released incompatible materials separated during the entire cleanup period and preparation for disposal.

The coordinator will advise Custodial Services staff that the area is safe and that routine cleaning activities may resume.

The coordinator will make any necessary notifications as required by statue or regulation.

The coordinator will enlist the assistance of Protective Services, Custodial Services or Building Services staff as necessary. He/she shall provide direction for their activities and ensure their safety.

All emergency equipment and remediation equipment will be returned to active status under supervision of the coordinator.

Intermediate Chemical or Biological Release (ERL2)

The coordinator on call, using his/her best judgement, will evaluate the release and the related hazards.

If there is no fire and there are no injuries, but based upon the coordinator's knowledge of the high hazard areas within the School of Medicine, there are sufficient hazards that injuries may result, the coordinator will request Protective Services to contact the secondary emergency response coordinator and the emergency response agencies for assistance.

The primary coordinator will direct the secondary coordinators in remediating the release. If the emergency response agencies were summoned, the Hazmat Team of the St. Louis Fire Department will serve as incident commander. The coordinator will serve as a technical adviser to the incident commander.

The coordinators will act to limit the impact of the release on the environment.

The coordinators, using the necessary protective equipment will contain the spilled chemicals using the necessary materials from the emergency response carts.

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The coordinators will relocate spilled materials and contaminated materials used to remediate the spill to the HMMB and prepare them for disposal.

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The coordinators will attempt to keep released incompatible materials separated denormental COMPLIANCE

period.

The Primary Coordinator will advise the Custodial Services staff that the area is safe and that routine cleaning activities may resume.

The Primary Coordinator will notify the Chief Facilities Officer of the release and notify local, state, and federal agencies including the National Response Center that the Contingency Plan was implemented. All required information will be provided in a timely manner.

The Primary Coordinator will enlist the assistance of Protective Services, Custodial Services and Building Services as needed. He/she shall provide direction for their activities and ensure their safety. In the event that the St. Louis City Emergency Response Agencies were summoned, the primary coordinator, the Protective Services Officer and a representative of Building Services will meet the St. Louis Fire Department Hazmat Team at the entrance to the affected building. The Emergency Response Coordinator will accompany the fire department hazmat team to the site of the incident and will provide technical information regarding the hazards associated with the materials that were released. The Protective Services Officer will remain at the entrance to the building for crowd control and communications. The Building Services Department representative shall remain with the Protective Services Officer and shall, at the request of the Emergency Response Coordinator or the Hazmat Team, activate or deactivate any equipment or services requested.

Using his/her best judgement, the Primary Coordinator shall decide if the emergency should be upgraded to a Large Chemical or Biological Release. He/she shall require evacuation of the area, building and adjacent buildings as deemed necessary. He/she shall instruct Building Services staff to deactivate or reactivate mechanical systems as deemed necessary to control the release, to remediate the emergency, to protect staff and visitors including those in adjacent buildings or off-site, and to protect the environment.

If necessary, the Primary Coordinator, Chief Facilities Officer or ranking secondary coordinator shall contact the private contractor, under contract to the University, to effect a cleanup of the released chemicals in the area.

All equipment shall be returned to active status under the supervision of the coordinator.

The primary coordinator, with assistance from the secondary coordinators, shall prepare a report including an evaluation of the emergency, its cause, its prevention, and the School of Medicine response efforts. He/she may enlist other qualified individuals to assist in the evaluation.

Large Chemical or Biological Release or Eminently Dangerous Situation (ERL2)

The Hazmat Team of the emergency response agencies will establish a command post. The primary coordinator will serve as a technical adviser to the incident commander.

Secondary coordinators will don protective equipment and assist the emergency response agencies and ensure that the response agencies are protected from chemical and biological exposures.

The coordinators shall act to limit the impact of the incident on the environment.

AC VITABLEOGRATION will attempt to keep released incompatible materials separated during the entire clean up HOMALIMOO peniod MORIVII

The primary coordinator, or ranking secondary coordinator will contact the private contractor under contract to the University to assist with the cleanup.

The primary coordinator will notify all required local, state, and federal agencies including the National Response Center and provide all required information in a timely manner.

The primary coordinator shall enlist Protective Services, Custodial Services and Building Services to assist in the emergency as Services and Protective Services shall remain at the designated staging area assigned by the incident commander until called for active duty.

The primary coordinator, at his/her discretion, shall require evacuation of additional buildings, other institutions or residents near the site who may become exposed to hazardous releases.

The primary coordinator shall instruct the Public Relations staff regarding the extent of the problem and necessary information that should be released. Public Relations shall meet the media at the area designated by the incident commander or the primary emergency response coordinator.

The primary coordinator shall ensure that spilled and contaminated materials will either be relocated to the HMMB or properly disposed by a private contractor.

The primary coordinator shall ensure that all equipment is returned to active service.

The primary coordinator, with assistance from the secondary coordinators, shall prepare a report including an evaluation of the emergency, its cause, its prevention and the response of the School of Medicine. He/she may enlist other qualified individuals to assist in the evaluation.

Major Disaster (ERL2)

During a major disaster such as a major earthquake or severe tornado, it is assumed that the Emergency Response Coordinators will not be available to respond for hours or perhaps days following the disaster if they are not on site at the time of the emergency.

Responses during a major disaster shall be covered in the Washington University Disaster Plan.

Under "Types of Potential Emergencies" of this document, the relative biological and chemical risk to first responders in each building during an intermediate emergency, worst case emergency or major disaster have been identified for use by Emergency Response Coordinators, St. Louis Fire Department Hazmat or other responders.

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SUMMARY OF THE DUTIES OF WUSM PROTECTIVE SERVICES

Small Fire (ERLI)

Receive notification that a small fire exists.

Respond to the area and assist the investigator as needed in extinguishing the fire.

Report the fire to the primary or ranking secondary emergency response coordinator.

Upgrade the situation and contact 9II if the fire cannot be extinguished with a single fire extinguisher.

Small Chemical or Biological Release (ERLI)

Receive notification that a release has occurred.

Determine the location of the release.

Determine if there is a fire or if there are injuries. If so, this is an intermediate emergency.

Notify the Primary Emergency Response Coordinator if there is not a fire or there are no injuries.

Notify the responsible Protective Services force (WUSM, Barnes Hospital, St. Louis Children's Hospital, or Jewish Hospital) to dispatch an officer to secure the area and meet the Emergency Response Coordinator.

Assist the coordinator as directed.

Record the time and location of the release, the call to the coordinator and the time of his/her arrival. Prepare standard reports as dictated by Protective Services standard operating procedures.

Direct inquiries from the media or the public to Medical Public Relations.

Intermediate Chemical or Biological Release (ERL2)

In School of Medicine buildings:

- (I) Receive notification that an intermediate emergency exists.
- (2) Determine the location of the fire or injuries,
- (3) Notify emergency response agencies at 911. Advise the emergency response agencies of the specific location using Protective Services standard procedures.

Notify emergency response agencies at 911 if the primary coordinator determines that a release or impending release of hazardous chemical or biological material constitutes an intermediate emergency.

Using figure Notify all Emergency Response Coordinators. Dispatch officers in pairs to conduct a limited evacuation of the area involved in the emergency. At no time should the officers conducting the evacuation enter the affected area, inhale the vapors or smoke, and/or touch the solid or liquid materials.

Dispatch officers to meet the responding agency and Emergency Response Coordinator(s) at the appointed location and escort them to the area involved in the emergency.

HOLE (1) DE Ensure that all injured Washington University staff and visitors are taken to the Barnes Hospital Emergency 30 (Room!for treatment. The affiliated institutions shall make arrangements for affected staff and visitors.

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Assist the primary coordinator, ranking secondary coordinator (or emergency responding agencies) as directed.

Record the time and location of the release, the call to the emergency response agency, the call to the coordinators, and the time of their arrival. Do not prepare reports or talk to the public or media.

Large Chemical or Biological Release or Eminently Dangerous Situation (ERL2)
Receive notification that a release has occurred.

Determine the location of the emergency.

Determine if there is a fire or injury.

Notify the emergency response agencies at 911. Advise the emergency response agencies of the specific location.

Notify all Emergency Response Coordinators.

Dispatch officers in pairs to conduct a limited evacuation of the area involved in the emergency and adjacent areas.

Dispatch officers to meet the emergency responding agencies and Emergency Response Coordinator(s) at the appointed location and escort them to the area involved in the emergency. At no time should the officers conducting the evacuation enter the affected area, inhale the vapors or smoke, and/or touch the solid or liquid material.

Ensure that all injured persons are taken to the Barnes Hospital Emergency Room for treatment.

Assist the Primary Coordinator (or emergency responding agencies) as directed.

Record the time and location of the release, the call to the emergency response agency, the call to the coordinators, and the time of their arrival. Prepare standard reports as dictated by Protective Services standard operating procedures.

Direct inquiries from the media or the public to Medical Public Relations.

Response to Fire Alarms (ERLI or ERL2)

Respond to a telephone alarm as described above.

Respond to a pull station alarm as described for an intermediate or worst case emergency (ERL2).

Respond to a smoke detector alarm by verifying that an emergency exists. If an emergency exists follow above information.

Respond to a sprinkler system flow alarm as described for an intermediate or worst case emergency (ERL2).

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Major Disaster (ERL2)

During a major disaster such as a major earthquake or severe tornado, it is assumed that the Emergency Response Coordinators will not be available to respond for hours or perhaps days following the disaster if they are not on site at the time of the emergency.

Responses during a major disaster shall be covered in the Washington University Disaster Plan.

SUMMARY OF THE DUTIES OF PUBLIC RELATIONS

The Public Relations Department will serve as an interface with the media and the public before, during and following an emergency.

If time allows, prepared statements including evacuation notices and hazard information will be issued by the Public Relations Department.

Information that documents beneficial results from research using hazardous materials will be assembled and dispensed by the Public Relations Department.

If technical information is required, the Public Relations Department will arrange for qualified individuals to address the media in media staging areas.

The Public Relations Department or Protective Services shall escort the media to the staging area. Medical School auditoriums not threatened by the emergency will be used as media staging areas.

SUMMARY OF THE DUTIES OF BUILDING SERVICES AND CUSTODIAL SERVICES

Building Services and Custodial Services shall assist the Primary Emergency Coordinator as directed in controlling the release.

Building Services shall make available to the coordinator and the emergency response agencies information including, but not limited to:

- Sprinkler system shutoff valves.
- Gas valves.
- Electric disconnects.
- The volume of exhaust air from the affected area.
- The volume of supply air into the affected area.
- Details of air handling systems in adjacent or nearby buildings.

Building Services shall:

- Deactivate or activate mechanical systems.
- Provide mechanical closure to floor drains and other openings.
- Provide dikes or mechanical barriers to prevent lateral movement of liquids as directed by the ranking V coordinator or Incident Commander.

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Contingency Plan: In the event of a hazardous chemical or biological release

Building Services shall obtain the services of heavy equipment owners and operators to prepare dikes, cleanup contaminated soil and other necessary functions as directed by the ranking coordinator or Incident Commander.

Building Services shall respond to all emergencies by posting a knowledgeable person or persons at the staging area or at the entrance to the affected facility with the Protective Services Officer to assist in building shutdowns as requested by the St. Louis Fire Department Hazmat Team or the ranking Emergency Response Coordinator.

LISTS OF EMERGENCY CONTACTS

The Primary Emergency Coordinator will be the first contacted and all alternates will be contacted in the designated order. In the absence of the Primary Emergency Coordinator the ranking Emergency Coordinator on site will be responsible for the Contingency Plan's implementation. All emergency coordinators will consider themselves "on call" at all times. Should an emergency develop, the emergency coordinator will immediately take the necessary steps to contain the problem. Concurrently, he/she will notify the Chief Facilities Officer, Ms. Melissa Hopkins at 314-362-4970.

Figure I is a list of the telephone numbers of the emergency coordinators and the first response authorities such as fire and police departments, ambulance service, Barnes Hospital Emergency Room Service, state and local emergency response officers, Chemtrec, Gateway Hazardous Materials Emergency Response Network, and emergency response contractors who may be called upon to assist in an emergency response action.

Figure 2 (see below) is a list of faculty members who will act as expert consultants for chemical problems. These faculty members are listed by the St. Louis Section of the American Chemical Society in a published booklet entitled, "Answers to Chemical Questions." Faculty experts will be available for consultation with the Environmental Health & Safety office and Emergency Response Coordinators.

Figure 2

Business Addresses

I.	
Dr. John R. Bleeke, Asst. Prof.	Washington University
Department of Chemistry	School of Medicine
Campus Box II34	•
Business: (314) 935-6809	660 S. Euclid Avenue
Home: (314) 863-7278	St. Louis, MO 63110
,	
2.	
Dr. John S. Taylor, Professor	Washington University
Department of Chemistry	School of Medicine
Campus Box II34	
Business: (314) 935-6721	660 S. Euclid Avenue
Home: (314) 721-1129	St. Louis, MO 63110
` '	

Faculty Consultants

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DIVISION OF ENVIRONMENTAL COMPLIANCE

RESPONSE ACTIONS IN WASHINGTON UNIVERSITY SCHOOL OF MEDICINE OWNED AND/OR OPERATED BUILDINGS

ERLI (Emergency that can be handled by in-house emergency responders)

Small fire

In the event of a small fire, i.e., trash can fire, the Protective Services Officer, office staff or laboratory staff will use the fire extinguisher to extinguish the fire. After the blaze has been extinguished, the Protective Services Command Post at 362-HELP should be contacted to report the incident.

The officer at the Command Post will determine the location of the small fire (building and room). He/she will notify the Primary Emergency Response Coordinator so that investigation can be made to ascertain if there are hazardous biological materials or chemicals involved, to determine the cause of the fire and to implement preventative measures. After hours, the officer at the Command Post shall contact the EH&S emergency pager (836-2877) and if needed use Figure I to contact the Emergency Response Coordinator.

The Emergency Response Coordinator will investigate the fire and determine if any hazardous biological or chemical materials were involved. If there were hazardous biological or chemical materials involved, he/she shall determine the nature of the hazard, ensure that there is no danger from additional exposure of workers and shall make the necessary reports to local, state and federal agencies as required by law or regulation. The coordinator will then prepare a written report including the cause of the fire, the corrective action taken and any recommendations or procedures necessary to prevent reoccurrence of the incident or similar incidents. If there are hazardous materials involved, the coordinator will see follow the procedures below.

Small hazardous chemical or biological release

In the event of a hazardous biological or chemical spill or accidental release the laboratory staff will contact the Washington University Environmental Health & Safety office at 362-6816 or the WUSM Protective Services Command Post at 362-HELP or 362-2698 to report the release. After normal working hours a hazardous material would be detected by the Protective Services Officer making his/her rounds and reported to the Command Post. Upon receipt of a hazardous material report, the following actions will be taken:

The officer at the Command Post will determine the location of the hazardous material release (building and room) and whether there is a fire, and/or injuries. If there is a fire, an eminently dangerous situation, or if there are injuries, the emergency should be treated as an intermediate or worst case release and will be remediated as described below. If there are no injuries or fire, the officer at the Command Post will contact the Emergency Response Coordinator using Figure I and apprise him/her of the release including building and room.

The Coordinator will check the areas for special hazards. If an area with a special hazard is involved, it will be declared an intermediate chemical release (see below).

The officer at the Protective Services Command Post shall dispatch trained officers.

The officers dispatched to the area shall secure the area and ensure that there are no injuries while to moavoiding personal contact with spilled liquids, spilled solids or inhaling vapors.

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Contingency Plan: In the event of a hazardous chemical or biological release

• The officer dispatched to the scene shall permit laboratory staff who have experience in working with the chemicals to use the spill kits provided in the area to contain the spill until the emergency response coordinator arrives.

The Emergency Response Coordinator will remediate the spill using the spill kit located in the area or material from the mobile emergency supply areas. Additional containment materials are available from the storage areas within the HMMB.

After containment and cleanup, all contaminated materials will be removed and taken to the HMMB for disposal in accordance with all applicable laws and regulations.

The Emergency Response Coordinator will make any required notifications.

The Emergency Response Coordinator will complete a chemical incident report and file it with the Environmental Health & Safety office.

Custodial Services shall be instructed to cleanup the area after the hazards are removed.

ERL2 (Emergency that requires assistance from an agency outside the university)

Intermediate hazardous chemical or biological release

In the event of an intermediate hazardous biological or chemical material spill or release, the laboratory staff will contact the Washington University Environmental Health & Safety Office at 362-6816 or the Washington University School of Medicine Protective Services, at 362-4357. In the event that the accidental release occurs after normal working hours, it will be discovered by the officer making rounds and reported to the Protective Services. Upon receipt of the information that an intermediate hazardous material release has occurred, the lead officer at Protective Services will initiate the following actions:

Determine the location of the hazardous material release fire and/or injured person(s).

Call 9II and report the problem. The responding agency shall be directed to the specific location using standard notification procedures.

Dispatch an officer to meet the first responders.

Contact all of the Washington University Emergency Response Coordinators using the priority established in Table I of this contingency plan.

Dispatch officers in pairs to the affected area. The officers will conduct a room by room evacuation of the immediate area surrounding the release and secure the area, taking care not to expose themselves by contact with spilled liquids or solids, vapors or smoke. The floor above and below the area involved and the remainder of the floor where the release occurred shall be secured. Other floors shall be evacuated as required by the ranking Emergency Response Coordinator or the Incident Commanda of the Secured. Department.

DIVISION OF ENVIRONMENTAL COMPLIANCE

 Officers shall not enter a room or stairwell if the door knob is warm or if there is released material flowing from under the door.

The primary Emergency Response Coordinator will serve as technical consultant to the St. Louis Fire Department Incident Commander and shall be responsible for directing the clean up activities following stabilization of the release. The secondary coordinators may don the necessary protective gear and clean up the chemical spill using materials from the mobile emergency response carts and the HMMB. In the event of fire, the secondary coordinator(s) wearing proper personal protective equipment may enter the building under the guidance of the St. Louis Fire Department Hazmat Team to provide expertise regarding the hazardous nature of the released materials to ensure the safety of the first responders. In the event of injuries, the primary coordinator will ensure that the injured receive treatment at the Barnes Hospital Emergency Room or Barnes Care.

The primary Emergency Response Coordinator will make the necessary notifications to the environmental agencies as soon as the release is controlled.

The Emergency Response Coordinator will complete a Chemical Incident Report and file it with the Environmental Health & Safety office.

All contaminated materials will be removed to the HMMB for disposal in accordance with all applicable laws and regulations.

If the intermediate chemical release is out of control and threatens to become a large chemical or biological release, the Emergency Response Coordinator or the St. Louis Fire Department Incident Commander shall upgrade the emergency and proceed with plans as described under the "large chemical or biological release" (see below).

WUSM Public Relations, will interface with the local media. All communications with the media shall be coordinated by WUSM Public Relations.

WUSM Protective Services Officer shall assist the St. Louis Police Department as requested by the ranking police officer on duty at the scene or the Incident Commander.

Protective Services shall not discuss the release with any members of the public or news media. A report shall be prepared that contains the building and room involved, the time the Emergency Response Coordinator was called and arrived, the time the Emergency Response Agency was called and arrived.

Building Services employees shall assist the Emergency Response Coordinator as directed in the following ways:

Turn off mechanical equipment as directed by the ranking Emergency Response Coordinator or the Incident Commander such as, but not limited to:

- Supply air fans
- Exhaust air fans
- Fire alarm systems
- Sprinkler systems
 - Electrical disconnects
 - ध्रि । Gas yalves

FC! Provide mechanical closure to floor drains and other openings that would permit the hazardous material to

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

be released into the environment.

Provide dikes or mechanical barriers to prevent lateral movement of released materials.

Large hazardous chemical or biological release or eminently dangerous situation

Upon receipt of a report of a major fire or hazardous biological or chemical release from laboratory staff, Protective Services officers on rounds or the central fire alarm, the Protective Services Officer at the Command Post will initiate the following actions:

Determine the extent of the fire and injuries, activate the fire alarm system if not activated, contact 911 and request emergency assistance advising the emergency response agencies of the specific location using the standard notification procedures.

If the central fire alarm is from a smoke detector, the Protective Services Officer will immediately dispatch an officer to verify there is a fire in the area identified in the alarm. If the emergency condition is verified, contact 9II as described above.

If the alarm is from a pull station or by telephone, WUSM Protective Services shall call 911 immediately.

After contacting 911, the Protective Services Command Post shall contact all of the Washington University Emergency Response Coordinators as identified in Table 1.

The officer at the Protective Services Command Post shall dispatch officers in pairs to conduct a room by room evacuation of the floors above and below the floors involved in the major emergency, taking adequate precautions to prevent personnel from being exposed to spilled liquids and solid materials, vapors, smoke and fire.

- Protective Services Officers shall not enter any room or stairwell in which the door knob is warm or from which released materials are flowing from under the door.
- A room by room evacuation of the floor(s) involved in the fire and chemical release will be conducted by the secondary Emergency Response Coordinator and/or the fire department hazmat team while wearing self-contained breathing apparatus and other protective equipment.

The primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator or the St. Louis Fire Department Incident Commander, at his/her discretion, shall cause adjacent buildings to be evacuated by Washington University Medical School Protective Services, the Police Department or the St. Louis Fire Department. Washington University Protective Services shall render assistance as requested.

The primary Emergency Response Coordinator shall, at his/her discretion, if there is a significant release of hazardous materials into the air, cause the air supply and exhaust in buildings downwind from the release to be turned off by contacting the Washington University School of Medicine Building Services Computer Operator at 362-3102.

The primary Emergency Response Coordinator or the Incident Commander, may at his her discretion enlist the aid of the St. Louis Police Department to evacuate residents from the area if Polices of materials are deemed harmful to their health.

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Notification to the media regarding any evacuation or release of information to the public will be conducted

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by Washington University School of Medicine Public Relations and/or City of St. Louis emergency agencies.

All notifications to federal, state and local officials shall be the responsibility of the Emergency Response Coordinator.

The primary Emergency Response Coordinator, ranking secondary Emergency Response Coordinator or the Chief Facilities Officer, at his/her discretion, shall activate the emergency response contractor under previous contract with the University, to conduct a cleanup of contaminated soil and debris, following the successful extinguishing of the fire.

Washington University Medical School Protective Services shall assist the St. Louis Police Department and the Incident Commander as requested by the ranking police officer on duty at the scene.

The Washington University Medical School Building Services Department, under the direction of the primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator shall assist in the following ways:

- Deactivate or activate mechanical equipment such as, but not limited to, supply air fans, exhaust air fans, fire alarm systems, sprinkler systems, gas shutoff valves, electrical disconnects.
- Provide mechanical closure to floor drains and other openings that would permit the material to be released into the environment.
- Provide dikes or mechanical barriers to prevent lateral movement of released materials.
- Obtain the services of heavy equipment owners and operators to prepare dikes, clean up contaminated soil and other necessary functions as directed.

Major disaster

In the event of a major disaster, the University Disaster Plan will apply.

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Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release

RESPONSE ACTIONS IN BUILDINGS OWNED OR OPERATED BY AFFILIATED INSTITUTIONS

In the event of a hazardous chemical or biological spill or accidental release, the laboratory staff will call the building owner/operator Protective Services Office to report the release. If a call is received by WUSM Protective Services that identifies an emergency in buildings owned or operated by affiliated institutions, the officer shall immediately notify the appropriate Protective Services/Protective Services/Police force of the institution in which the occurred emergency and provide any assistance requested.

Danforth Campus	935-5555
Barnes Hospital	362-0911
St. Louis Children's Hospital	454-6137
Jewish Hospital of St. Louis	454-7144

After normal working hours, a hazardous materials release will be detected by the Protective Services Officer making rounds and reported to the Command Post. Appropriate notifications will then be made by Protective Services.

NOTIFICATION

The Environmental Health & Safety office primary Emergency Response Coordinator, ranking secondary Emergency Response Coordinator or third Emergency Response Coordinator will notify the following agencies:

MDNR Emergency Response Coordinator (314) 634-2346

EPA Region VII Emergency Planning Response Branch (913) 236-3778

National Response Center, 24 hour, toll-free number, 800/424-8802

Local Emergency Planning Committee 314/534-2244

Any other agency required by law or regulation, as soon as it is reasonably possible after the intermediate or worst case hazardous materials release has occurred

The information report must include the following:

Name and telephone number of the reporter

Name and address of the facility

Time and type of incident

Name and quantity of materials involved, if known

The extent of injuries, if any

The possible hazards to human health or the environmental outside the facility

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CONTAINMENT AND DISPOSAL OF MATERIALS

During an emergency, the primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator will take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur or spread to other hazardous materials at the facility. These types of measure will include, where applicable, stopping processes and operations, collecting, and containing released materials and removing or isolating containers.

If the facility stops operations in response to a fire, explosion or release, the coordinator will provide for treating, storing, or disposing of recovered material, contaminated soil or water, or any other material that results from a release, fire or explosion at the facility. This will involve arranging for proper shipping containers, labeling of materials, manifesting and final shipment to permitted hazardous waste treatment or disposal facility.

MEDIA COMMUNICATIONS

In the event of a major release of hazardous chemical or biological materials that requires immediate notification of the public through the media, the Director of Medical Public Relations (362-8258), will issue the necessary announcement. The St. Louis Police and Fire Departments in cooperation with the primary Emergency Response Coordinator will utilize methods of notification to ensure the safety of the public similar to those used in other analogous situations. After the immediate crisis has passed and the hazardous material release is contained, more detailed information may be released to the media. All information will be released by Medical Public Relations. Media personnel should direct any and all requests for information or interviews to Medical Public Relations.

INCIDENT COMMAND

The first emergency response coordinator to arrive at the scene shall serve as the medical school incident commander. Command shall be passed to each higher-ranking coordinator upon his/her arrival. If emergency response agencies are summoned, incident command shall pass to the St. Louis Fire Department Incident Commander. School of Medicine Coordinators shall serve as technical advisors as required by the incident commander. Other School of Medicine personnel, e.g., Protective Services, Building Services, Custodial Services, shall assist the incident commander or his/her designee as requested.

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Contingency Plan: In the event of a hazardous chemical or biological release

WUSM EMERGENCY EQUIPMENT General Information

Reference Attachment 2 for specific information on the capabilities and specific locations.

WUSM Laboratories

- Sprinkler systems, in many buildings, safety showers and eye wash stations.
- Portable fire extinguishers.
- Personal protective equipment, which may include gloves, safety glasses, goggles, full face shields, fire blankets and mounted cabinets containing spill control equipment (for acid, base and solvent).

Emergency Response Supplies

Emergency response spill supplies are located in Clinical Sciences Research Building, second floor, Environmental Health & Safety Office, Room 2231, (CSRB 2231). This room contains the following equipment:

- ABC type portable extinguisher.
- Personal protective equipment, including organic vapor and acid cartridges, ammonia cartridges, formaldehyde cartridges and mercury cartridges, chemical resistant boots, gloves, and Tyvek coveralls with hoods.
- Traffic control markers, tape, spill control equipment including spill control pillows, absorbents (oil
 -dry, Spill-X-S, vermiculite) dustpan and brush, spark-proof shovel, neutralizing chemicals, i.e., Spill-X-A,
 Spill-X-C and formalex.

Hazardous Materials Management Building (HMMB)

Safety and emergency response supplies are located on 4th floorin the storage area and in the spill supply storage room on the 3th floor.

- Safety showers, eye washes, a fire blanket and first aid station are accessible to the laboratory and material storage areas.
- Wall mounted ABC portable dry chemical I0 lb. Class D fire extinguishers are strategically located and well
 marked for visibility throughout the facility.
- Centrally located spill control equipment including spill control pillows, oil-dry, vermiculite, Spill-X-S, brooms and dustpan, neutralizing chemicals (Spill-X-A, Spill-X-C, Formalex) is available.
- Personal protective equipment including chemical resistant gloves and boots, Tyvek coveralls, full face respirators with organic vapor and acid cartridges, ammonia cartridges, formaldehyde cartridges and mercury cartridges and SCBA.
- A telephone communication and alarm system is available.
- Air ventilation system with alarm.

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WUSM LABORATORIES AND BUILDINGS

Evacuation maps are posted on each floor of each building throughout the School of Medicine. In case of fire, a central alarm system (visual and audible) will signal the emergency. These posted evacuation routes will be utilized as defined in the fire plan for the area (See Appendix I for building specific evacuation routes). In the event of a hazardous materials release, the following specific evacuation procedures will be in effect.

Small Chemical or Biological Release (ERLI)

Washington University Protective Services will evacuate the immediate area where the release has occurred. Since the release is less than 55 gallons, the laboratory or storage room shall be evacuated. If the spill occurs in a corridor, the corridor shall be evacuated. If vapors are present, doors to rooms opening into the corridor shall be closed.

Intermediate Chemical or Biological Release (ERL2)

If the fire alarm has not sounded, Washington University Protective Services will sound the alarm and will dispatch officers to the affected area. Without exposing themselves to vapors, spilled liquid or solid materials, smoke or fire, the officers will conduct a room by room evacuation of anyone remaining in the area where the release and/or fire have occurred including the floor above and below the affected area.

The Emergency Response Coordinator or ranking secondary Emergency Response Coordinator, with protective gear and/or the St. Louis Fire Department Hazmat Team, will check the areas involved to evacuate any injured or anyone remaining. Those injured or exposed to hazardous materials or smoke shall be removed to the Barnes Hospital Emergency Room or Barnes Care for treatment.

Large Chemical or Biological Release (ERL2)

If the fire alarm has not sounded, Protective Services will sound the alarm and dispatch officers in pairs to conduct a room by room evacuation of the floors above and below the affected area. The officers shall not expose themselves to contact with spilled hazardous liquid or solid materials, vapors, smoke or fire.

The Emergency Response Coordinator(s), with adequate protective gear and/or the St. Louis Fire Department Hazmat Team, will inspect areas involved in the release and fire. Those persons injured or exposed to hazardous materials or smoke will be decontaminated and removed to the Barnes Hospital Emergency Room or Barnes Care for treatment.

The primary Emergency Response Coordinator, in collaboration with the Incident Commander of the St. Louis Fire Department, will decide if the entire building, interconnecting buildings, adjacent buildings, other institutions or residents off-site should be evacuated.

Should there be an evacuation of the neighborhood, the St. Louis Police Department shall use methods used in analogous situations. Washington University Medical Public Relations and the city shall issue the information to the medical Day of the medical Day of the medical Day of the medical Public Relations and the city shall issue the information to

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Contingency Plan: In the event of a hazardous chemical or biological release

HAZARDOUS MATERIALS MANAGEMENT BUILDING (HMMB)

In the event of a chemical release or fire or injuries in the laboratory or storage areas of the HIMMB, the emergency alarm (boat horn) will be sounded by the person discovering the emergency or by the Emergency Response Coordinator. The "ALERT" signal is a single repeated sounding of the horn. The "EMERGENCY" signal, which signifies evacuation, is a continuous blast. When all danger is passed the "ALL CLEAR" signal, consisting of two subsequent sequential blasts of the horn will be sounded. Upon hearing the "EMERGENCY" horn, HIMMB staff and visitors will proceed to the exit, moving in the opposite direction to the fire or material release. They will proceed down the stairs to evacuate the facility as quickly as possible. In the event the stairs are not usable, a secondary exit (fire escape) located near the center of the west wall will be used. Evacuating persons will be directed to regroup on the ground floor of the HIMMB building at the rear dock area if it is safe. Alternatively, assembly should be at the 4444 Building (formerly Blue Cross / Blue Shield). A head count will be taken to determine whether all have been evacuated safely. When the immediate danger is passed, the "ALL CLEAR" signal will be sounded.

AFFILIATED INSTITUTIONS

Each affiliated institution shall implement its evacuation procedure in accordance with institutional policy or upon request of the Incident Commander or the ranking Emergency Response Coordinator.

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During the course of an emergency, injured individuals will be provided first aid as appropriate. For more serious emergencies, medical assistance will be sought. During an emergency situation, the primary Emergency Response Coordinator or the St. Louis Fire Department Incident Commander will do the following

Designate and direct personnel.

Assess the situation and summon emergency medical assistance from Barnes Hospital Emergency Room, (314) 362-9166 or the City of St. Louis Emergency Medical Ambulance Service at 911. Protective Services staff will meet incoming emergency medical service personnel at the appointed location and direct them to the injured individuals.

Assist the medical service personnel by providing notification to the hospital emergency room of the impending arrival of casualties, the nature of injuries, extent of contamination and other pertinent details such as material released and toxicity. The primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator will direct the following:

Access to information regarding agents causing injury. If needed, the following organizations may provide additional information.

Chemtrec, I-800-424-9300 National Poison Control Center, 404-588-4400

Provide Material Safety Data Sheets from the computerized Material Safety Data Sheet program located at the Environmental Health & Safety office.

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ARRANGEMENTS WITH LOCAL AUTHORITIES

ST. LOUIS CITY EMERGENCY RESPONSE AGENCIES

The following St. Louis City Emergency Response Agencies have been provided copies of this Contingency Plan:

- St. Louis Fire Department
- St. Louis Police Department
- St. Louis Emergency Medical Service
- St. Louis Health Department
- St. Louis Metropolitan Sewer District

The St. Louis Fire Department has agreed to respond as the primary responder. The St. Louis City Fire Department will be the primary response agency in any hazardous material incident. The fire department personnel will serve as incident commander and will contain released chemicals conduct search and rescue, extinguish fires, supervise building evacuation, protect surrounding buildings and remain on site until the hazardous condition has been controlled and stabilized. WUSM Hazmat response staff will then remediate the released materials or arrange with a private, permitted firm to remediate contamination.

The St. Louis Police Department will be responsible for crowd control and Protective Services during the incident and until WUSM can arrange with a private contract group to provide the additional Protective Services required during cleanup, City Emergency Medical Service will provide on-site paramedic care for injured staff, visitors and responders prior to transport to the Barnes/Jewish Hospital Emergency Room.

The City Health Department will provide on-site assistance in assessment of the hazards and the protection of the public as requested by the City Fire Department. Additional resources are available to the City responders under their existing mutual aid agreements.

Metropolitan Sewer District will be advised by City Fire Department regarding any hazardous materials released into the sewer system.

WASHINGTON UNIVERSITY MEDICAL CENTER HOSPITALS AND CLINICS

Washington University Medical Center treatment facilities provide emergency services on site. The physician/surgeon at the emergency room of Barnes Hospital or other medical center hospitals is authorized to provide medical treatment for University personnel or visitors injured as a result of a hazardous materials emergency or fire at the HMMB or at any of the Medical School laboratories or clinical treatment areas. Contact has been made with the above response authorities with respect to providing these services. A copy of the Washington University Medical School Contingency Plan has been provided to each.

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POST EMERGENCY PROCEDURES/REQUIRED NOTIFICATIONS

PREVENTION OF RECURRENCE

The Emergency Response Coordinator will take all necessary steps to ensure that a second release, fire or explosion does not occur after the initial event. Procedures that will be followed by the coordinator are:

- Inspections for leaks or cracks in tanks, pipes, valves, drums or other containers.
- Inspections for pressure build-up or gas generation.
- Isolation of residual waste materials.

When all dangers of recurrence are passed, and risk of exposure is minimal, the coordinator will sound the "ALL CLEAR" signal.

DISPOSAL OF RELEASED MATERIALS AND CLEAN UP OF RESIDUES

The Emergency Response Coordinator will initiate clean up and disposal of the residues once the emergency situation is passed in order to avoid further contamination or recurrence. Spilled liquids contained by absorbent materials will be placed in drums or other containers, labeled and properly stored prior to disposal.

EQUIPMENT DECONTAMINATION

Equipment used during the cleanup will be decontaminated and prepared for future use. All facility personnel will remove contaminated clothing and shoes as needed. Fire extinguishers will immediately be recharged, personal protective equipment replaced and spill control materials restocked. Before operations are resumed, an inspection of all emergency response equipment will be conducted.

REQUIRED NOTIFICATION

Following implementation of the Contingency Plan, the primary Emergency Response Coordinator or secondary coordinator will notify the Regional Administrator, State Emergency Response Officers and any other appropriate agency, that the clean up has been accomplished as outlined above.

PERSONNEL DEBRIEFING

The Emergency Response Coordinator will conduct in-house debriefings of all participants in the incident to access preparedness and prevention steps, response actions, quality control and evacuation procedures. Based upon this evaluation, recommendations for revisions to the Contingency Plan will be made.

MEDIA BRIEFING

The Director of Medical Public Relations, will release to the media, any information regarding the hazardous material release determined by Washington University, to be necessary or beneficial to the public. All requests for information or interviews shall be directed to Medical Public Relations.

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Washington University School of Medicine
Contingency Plan: In the event of a hazardous chemical or biological release

TRAINING OF EMERGENCY RESPONSE COORDINATORS

Special training will be given to all Emergency Response Coordinators and HMMB personnel in responding to hazardous material releases, explosions and fires and implementation of the Washington University Medical School Contingency Plan. The training will be directed by a person trained in hazardous waste management procedures and chemical safety. Particular emphasis will be directed to use of emergency equipment, including alarms and fire extinguishers, respirators, spill control materials and to the shut down of HMMB operations, if necessary. Facility personnel will take part in an annual review and update of their initial emergency response training. See Training Materials/Records filed in the Environmental Health & Safety office.

RADIOACTIVE MATERIAL RELEASES

The information on the following pages identifies the emergency response personnel and the procedures to be followed in the event of radioactive material releases and/or contamination.

The use of radioactive materials at any institution is authorized by licenses issued by federal and state regulatory agencies. The various participating units that collectively comprise the Washington University Medical Center work together as a consolidated licensee in the case of radioactive materials use. The Environmental Health and Safety Office provides a support group, the Division of Radiation Safety, which manages and oversees the use of radioactive materials at our Medical Center.

Accidents that result in the spillage or release of radioactive material, including personnel contamination.

Contact WUSM Protective Services at 362-HELP (4357)
Radiation safety 24-hour Emergency Phone (314)299-I322
Additional numbers:
Dan Szatkowski - Office (314) 362-3479 Home (314) 472-5717 Mobile (314)299-I271
Sue Langhorst - Office (314) 362-2988 Cell (314) 299-I213 Home (314) 361-8758
John Smith - Office (314) 362-3491 Cell (314) 299-I272 Home (636) 227-7480
Radiation Safety Office: (314)362-3476

In the event that radiation safety assistance cannot be obtained, individuals involved in the accident should be advised to use the emergency procedures for a spill that are posted in every area of our institution where radioactive materials are utilized. In addition, these emergency procedures are specified in a Radiation Safety Manual that is also located on the Radiotion Safety website at https://radsafety.wustl.edu/AnIPages/AnI-RSManual.htm.

Accidents that result in both contamination and injury to personnel

The Emergency Department of Barnes Hospital has been designated to serve as the primary location within the Medical Center for the emergency care of radiation accident victims. In such an instance, the Barnes Hospital Emergency Department should be called (362-9123) and provided with the number and names of the individuals involved, a brief description of the physical injuries and conditions of each and, if possible, an estimate of the quantity and identity of the suspected radioactive materials. Special care should be taken to minimize contamination along the route to the Emergency Department.

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PROTECTIVE SERVICES OFFICERS

Protective Services Group	Head of Group	Area Served by Group
Protective Services Director Protective Services (362-3909)	John Ursch	School of Medicine
BJH/Children's Hospital Protective Services (362-0760)	Margie Brine	Barnes-Jewish Hospital, Children's Hospital
Central Institute for the Deaf Facilities Manager (977-0000) Farrow: 977-0000 x225 or (977-022 pager: 426-0975	Al Farrow	Central Institute for the Deaf (CID)
Hilltop Campus Director of Police 935-5555	William Taylor	Hilltop Campus

For further direction, you may also contact:

Debbie Mays, Manager of Environmental Health & Safety Children's Hospital (454-2606)

Bruce Backus, Director of Environmental Health and Safety WUSM, (362-6816)

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Appendix I Evacuation Routes

Contingency Plan-Washington University School of Medicine

Building Specific Information:

Barnard:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

CSRB floor 2 link

Primary evacuation Route:

Down center stairs to floor I, left at main hallway to stairs

up to CSRB 2

Alternative(s):

North into Wohl Hospital, stairs down to I, north to CSRB

Biotech:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street, to safe area

BJCIH:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Primary evacuation Route:

Eric P. Newman Center Lobby

Nearest stairwell to floor I, out main entrance, across

street, to safe area

Cancer Research:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area:

Primary evacuation Route:

Olin Hall Lobby Down center stairwell to floor I, south then east into

McDonnell Science building and Olin

Alternative(s):

Into the North or South building Down to floor I, towards center of

Cancer Research building, east into McDonnell Science and Olin

Clinical Sciences and Research:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area:

Eric P. Newman Center Lobby

Primary evacuation

Route: North stairwell to floor 2, east through link to

designated area

Alternative(s):

South stairwell to floor I, right to emergency exit, to Children's Pl. east to

designated area

East:

Sprinkled:

Υ

Smoke Detection:

Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street to designated area

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East Imaging:

Sprinkled:

Y

Smoke Detection:

Y

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Designated Safe Area:

Olin Hall Lobby

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street to designated area

East McDonnell Science:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, west on

street to designated area

Irene Walter Johnson:

Sprinkled:

N Smoke Detection: Y

Designated Safe Area:

Barnes Cafeteria

Primary evacuation Route:

Stairwell to floor 2, west through doorway, left down

corridor into Barnes main corridor, right to next

corridor then another right to designated area.

Alternative(s):

Stairwell to floor 2, east to main entrance, right before stairs through automatic doors, first right down Barnes main hallway to next main hall

then a right to designated area

Maternity:

Sprinkled:

N

Smoke Detection:

Y

Y

Designated Safe Area:

Barnes Cafeteria

Primary evacuation Route:

Stairwell to floor I to end of hall, left down main

corridor to next main hallway, right to designated area

McDonnell Science:

Sprinkled:

Y Smoke Detection:

Designated Safe Area:

East Imaging Lobby

Primary evacuation Route:

Center stairwell to floor I, through cafeteria and Olin, out doors across the street into the East building, first

right into designated area

Alternative(s):

Either north or south stairwell to floor I, through cafeteria and Olin, out

main entrance (Olin) across the street to the East building, first right into

designated area

McMillan:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area:

Barnes Cafeteria

Primary evacuation Route:

Nearest stairwell to floor I, north to main corridor then

west, to next main corridor then right to designated area

Medical Library:

Sprinkled:

Y.

Smoke Detection:

Y

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Barnes Hospital Main Lobby

Primary evacuation Route:

Down nearest stairwell to floor I, out main entrance on

the action

Euclid, across street west to designated area

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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

North:

Sprinkled:

Y

Smoke Detection:

Olin Hall Lobby

Y

Designated Safe Area:

Primary evacuation Route:

Nearest stairwell to floor I, south through Cancer

Research, left at center hallway into McDonnell

Science to designated area

Alternate route:

Down nearest stairwell to floor I, out main entrance, east on street to

designated area

North Tower Addition (CSRB):

Sprinkled:

Smoke Detection:

Y

Designated Safe Area: Eric P. Newman

Primary evacuation Route:

Stairwell to floor I, out main entrance to street, east to

designated area

Alternative(s):

Stairwell to floor 3, west into CSRB, east into link to designated area

Olin Residence Hall:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area: Medical Library Lobby

Primary Evacuation Route:

Nearest stairwell to floor I, south into McDonnell Science

then west into Designated Area

Parkview:

Sprinkled:

Y

Smoke Detection:

N

Designated Safe Area:

4444 Forest Park Lobby

Primary evacuation Route:

Down stairwell to nearest exit to designated area

Renard:

Sprinkled:

Y

Smoke Detection:

Designated Safe Area:

Barnes main Lobby

Primary evacuation Route:

Stairwell to floor I, south into main corridor, next main

corridor left to designated area

Alternative(s):

Stairwell to floor I, north through main entrance, across Children's Place to

base of CSRB

Shriners:

Sprinkled:

N

Smoke Detection:

Y

Designated Safe Area:

Tennis Courts in Park across Euclid

Primary evacuation Route:

Nearest stairwell to nearest exit to designated area

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DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

South:

Sprinkled:

N Smoke Detection: Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Stairwell to floor I, north into Cancer Research, right at

center corridor, Through McDonnell Science to

designated area

Alternative(s):

Stairwell down to floor one, south out main entrance, east to McDonnell

Science entrance to designated area

Spoehrer:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area: Medical Library Lobby

Primary evacuation Route:

Nearest stairwell to main entrance, south on

Kingshighway to Scott then left to Library and designated

area

West:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Barnes cafeteria

Primary evacuation Route:

Stairwell to floor I, south through back corridor,

to main corridor west, to next main corridor north to

designated area

Alternative(s):

Stairwell to floor I, southeast into IWJ through the automatic doors to

main corridor then west to next main corridor then north to designated area

Wohl Clinic:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Clinical Science and Research building second floor link

Primary evacuation Route:

West stairwell to floor 2, north into CSRB and

designated area

Alternative(s):

Far east stairwell to floor I, out emergency room exit, across

Children's Place to the base of CSRB

Wohl Hospital:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Clinical Sciences and Research building

Primary evacuation Route:

South then east into Wohl clinic, western stairwell to

floor 2, north into CSRB and the designated area

Alternative(s):

Northern most stairwell to floor I, east and then north to stairway to

CSRB and designated area

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Contingency Plan: In the event of a hazardous chemical or biological release

; 4444 Forest Park

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area:

Children's Parking Garage level I

Primary evacuation Route:

Nearest stairwell to nearest exit, across Duncan to

designated area

4480 Clayton:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area: Far southeast corner of rear parking lot

Primary evacuation Route:

Nearest stairway to back exit to designated area

Alternative(s):

Nearest stairway to front (main) entrance, around south side of building to

designated area

4511 Forest Park:

Sprinkled:

Y Smoke Detection: Y

Designated Safe Area: Parking lot across Taylor street

Primary evacuation Route:

Nearest stairwell to nearest exit to designated area

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Appendix 2

BJH & WUSM Emergency Response Policy

BJH Spills

Initial review of spill/odor will be conducted by BJH EH&S staff and they will authorize emergency response from WUSM EH&S if needed.

If WUSM EH&S receives the initial call from Protective Services, they will ask Protective Services if BJH EH&S was contacted first and ensure that authorization was provided by BJH EH&S prior to remediation of any spill/odor.

If WUSM EH&S and Protective Services are unable to reach BJH EH&S for authorization within 20 minutes, WUSM EH&S will respond to the emergency without BJH authorization.

Once WUSM EH&S emergency response representative is on the scene, that person becomes Incident Commander and follows the WUSM EH&S Emergency Response Protocol. BJH representative may be asked to assist.

BJH Spill Debris

If WUSM EH&S remediates a BJH spill, all BJH spill debris will be properly containerized and labeled in compliance with Missouri Department of Natural Resources guidelines and temporarily stored at the spill site until BJH spill responders transport the debris to the BJH waste storage area (unless other arrangements are made). WUSM EH&S will notify BJH EH&S that there is spill debris that needs removed. Removal of the spill debris should take place that day or the following day if the spill occurred the night before.

Helpful numbers

Children's Hospital

SLCH EH&S 454-6092 SLCH Protective Services 362-0750

Barnes Jewish Hospital

BJH EH&S 454-7008 BJH Protective Services 362-0750

Washington University

WUSM EH&S 362-6816 WUSM Spill Beeper 836-2877

WUSM Protective Services 362-HELP (4357)

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Contingency Plan: In the event of a hazardous chemical or biological release

Appendix3

Reportable Quantities List

Reportable Quantities for Hazardous Substances and Radionuclides

This appendix lists materials and their corresponding reportable quantities (RQ's) that are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601(14) (CERCLA;42 U.S.C. 9601 et seq). This listing fulfills the requirement of CERCLA, 42 U.S.C. 9656(a), that all "hazardous substances," as defined in 42 U.S.C. 9601(14), be listed and regulated as hazardous materials under 49 U.S.C. 5101-5127. That definition includes substances listed under sections 311(b)(2)(A) and 307(a) of the Federal Water Pollution Control Act, 33 U.S.C. 1321(b)(2)(A) and 1317(a), section 3001 of the Solid Waste Disposal Act, 42 U.S.C. 6921, and section 112 of the Clean Air Act, 42 U.S.C. 7412. In addition, this list contains materials that the Administrator of the Environmental Protection Agency has determined to be hazardous substances in accordance with section 102 of CERCLA, 42 U.S.C. 9602. It should be noted that 42 U.S.C. 9656(b) provides that common and contract carriers may be held liable under laws other than CERCLA for the release of a hazardous substance as defined in that Act, during transportation that commenced before the effective date of the listing and regulating of that substance as a hazardous material under

49 U.S.C. 5101-5127. 2. This appendix is divided into two TABLES which are entitled ``TABLE 1--HAZARDOUS SUBSTANCES and REPORTABLE QUANTITIES OTHER THAN RADIONUCLIDES" and ``TABLE 2--RADIONUCLIDES." A material listed in this appendix is regulated as a hazardous material and a hazardous substance under this subchapter if it meets the definition of a hazardous substance in Sec. 171.8 of this subchapter.

Column 1 of TABLE 1, entitled "Hazardous substance", contains the names of those elements and compounds that are hazardous substances. Following the listing of elements and compounds is a listing of waste streams. These waste streams appear on the list in numerical sequence and are referenced by the appropriate "D", OR "F" numbers. Since "K" numbers don't apply to Washington University School of Medicine, they are excluded from this list. Column 2 of TABLE 1, entitled "Reportable quantity (RQ)", contains the reportable quantity (RQ), in pounds and kilograms, for each hazardous substance listed in Column 1 of TABLE 1.

TABLE 2 lists radionuclides that are hazardous substances and their corresponding RQ's. The RQ's in table 2 for radionuclides are expressed in units of curies and terabecquerels, whereas those in table 1 are expressed in units of pounds and kilograms. If a material is listed in both table 1 and table 2, the lower RQ shall apply. Radionuclides are listed in alphabetical order. The RQ's for radionuclides are given in the radiological unit of measure of curie, abbreviated "Ci", followed, in parentheses, by an equivalent unit measured in terabecquerels, abbreviated "TBq".

For mixtures of radionuclides, the following requirements shall be used in determining if a package contains an RQ of a hazardous substance: (i) if the identity and quantity (in curies or terabecquerels) of each radionuclide in a mixture or solution is known, the ratio between the quantity per package (in curies or terabecquerels) and the RQ for the radionuclide must be determined for each radionuclide. A package contains an RQ of a hazardous substance when the sum of the ratios for the radionuclides in the mixture or solution is equal to or greater than one; (ii) if the identity of each radionuclide in a mixture or solution is known but the quantity per package (in curies or terabecquerels) of one or more of the radionuclides is unknown, an RQ of a hazardous substance is present in a package when the total quantity (in curies or terabecquerels) of the mixture or solution is equal to or greater than the lowest RQ of any individual radionuclide in the mixture or solution; and (iii) if the identity of one or more radionuclides in a mixture or solution is unknown (or if the identity of a radionuclide by itself is unknown), an RQ of a hazardous substance is present when the total quantity (in curies or terabecquerels) in a package is equal to or greater than either one curie or the lowest RQ of any known individual radianuclide in the mixture or solution, whichever is lower.

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Table 1 Hazardous Substances and Reportable Quantities other than Radionuclides

Reportable quantity (RQ) Hazardous substance pounds (kilograms) 100 (45.4) Acenaphthene 5000 (2270) Acenaphthylene 1000 (454) Acetaldehyde 1000 (454) Acetaldehyde, chloro-5000 (2270) Acetaldehyde, trichloro-100 (45.4) Acetamide Acetamide, N-(aminothioxomethyl)-1000 (454) 100 (45.4) Acetamide, N-(4-ethoxyphenyl)-. 1 (0.454) Acetamide, N-fluoren-2-yl-Acetamide, 2-fluoro-100 (45.4) 5000 (2270) Acetic acid 100 (45.4) Acetic acid (2,4-dichlorophenoxy)-5000 (2270) Acetic acid, ethyl ester Acetic acid, fluoro-, sodium salt 10 (4.54) Acetic acid, lead (2+) salt 10 (4.54) 1000 (454) Acetic acid, thallium(I+) salt 5000 (2270) Acetic anhydride 5000 (2270) Acetone 10 (4.54) Acetone cyanohydrin 5000 (2270) Acetonitrile Acetophenone 5000 (2270) 2-Acetylaminofluorene 1 (0.454) Acetyl bromide 5000 (2270) 5000 (2270) Acetyl chloride I (0.454) I-Acetyl-2-thiourea 5000 (2270) Acrylamide 5000 (2270) Acrylic acid 100 (45.4) Acrylonitrile 5000 (2270) Adipic acid I (0.454) AldicarbD Aldrin I (0.454) Allyl alcohol 100 (45.4) Allyl chloride 1000 (454) 100 (45.4) Aluminum phosphide 5000 (2270) Aluminum sulfate I (0.454) 4-Aminobiphenyl 5-(Aminomethyl)-3-isoxazolol 1000 (454) 4-Aminopyridine 1000 (454) Amitrole 10 (4.54) 100 (45.4) Ammonia 5000 (2270) Ammonium acetate 5000 (2270) Ammonium benzoate 5000 (2270) Ammonium bicarbonate 10 (4.54) Ammonium bichromate 100 (45.4) Ammonium bifluoride Ammonium bisulfite 5000 (2270) 5000 (2270) Ammonium carbamate 5000 (2270) Ammonium carbonate Ammonium chloride 5000 (2270) 10 (4.54) Ammonium chromate 5000 (2270) -Ammonium citrate, dibasic Ammonium dichromate 10 (4.54) 5000 (2270) Ammonium fluoborate, 100 (45.4) Ammonium fluoride 1000 (454) Ammonium hydroxide Ammonium oxalate//U 5000 (2270) Ammonium picrate 30: 13810013 10 (4.54)

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Contingency Plan: In the event of a hazardous chemical or biological release

Ammonium silicofluoride	1000 (454)
Ammonium sulfamate Ammonium sulfide	5000 (2270)
Ammonium sulfite	100 (45.4)
Ammonium tartrate	5000 (2270)
Ammonium thiocyanate	5000 (2270)
Ammonium vanadate	5000 (2270)
Amyl acetate	1000 (454)
iso-Amyl acetate	5000 (2270)
sec-Amyl acetate	5000 (2270)
tert-Amyl acetate	3000 (2270)
Aniline	5000 (2270)
o-Anisidine	5000 (2270) 100 (45.4)
Anthracene	5000 (2270)
Antimony cents	5000 (2270)
Antimony pentachloride	1000 (454)
Antimony potassium tartrate	100 (45.4)
Antimony tribromide	1000 (454)
Antimony trichloride	1000 (454)
Antimony trifluoride	1000 (454)
Antimony trioxide	1000 (454)
Argentate(1-), bis(cyano-C)-, potassium	1 (0.454)
Aroclor 1016	1 (0.454)
Aroclor I221	1 (0.454)
Aroclor I232	I (0.454)
Aroclor 1242	I (0.454)
Aroclor 1248	1 (0.454)
Aroclor 1254	1 (0.454)
Aroclor 1260	I (0.454)
Arsenic cents	I (0.454)
Arsenic acid	I (0.454)
Arsenic acid H3AsO4	I (0.454)
Arsenic disulfide	I (0.454)
Arsenic oxide As203	1 (0.454)
Arsenic oxide As205	I (0.454)
Arsenic pentoxide	I (0.454)
Arsenic trichloride	1 (0.454)
Arsenic trioxide	1 (0.454)
Arsenic trisulfide	1 (0.454)
Arsine, diethyl-	1 (0.454)
Arsinic acid, dimethyl-	I (0.454)
Arsonous dichloride, phenyl- Asbestos cents cents	I (0.454)
	I (0.454)
Auramine	100 (45.4)
Azaserine Azırıdıne	I (0.454)
Azindine, 2-methyl-	I (0.454)
Azirino[2',3':3,4]pyrrolo(1,2-a)indole-4,7-dione,6-	1 (0.454)
amino-8-[[(aminocarbonyl)oxy] methyl]-1,1a,2,8,8a, 8b-hexahydro-	10 (4.54)
8a-methoxy-5-methyl-, [1aS-[aalpha,8beta,8aalpha,8balpha)]-	
Barium cyanide	10 (4.54)
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	10 (4.54)
Benz[c]acridine	100 (45.4)
3,4-Benzacridine	100 (45.4)
Benzal chloride	5000 (2270)
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)	5000 (2270)
Benz[a]anthracene	10 (4.54)
1,2-Benzanthracene	IO (4.54)
Benz[a]anthracene, 7,12-dimethyl-	I (0.454)
Benzenamine	5000 (2270)
Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	100 (45.4)
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Benzenamine, 4-chloro-	1000 (454)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	100 (45.4)
Benzenamine, N,N-dimethyl-4-(phenylazo)-	10 (4.54)
Benzenamine, 2-methyl-	100 (45.4)
Benzenamine, 4-methyl-	100 (45.4)
Benzenamine, 4,4'-methylenebis(2-chloro-	10 (4.54)
Benzenamine, 2-methyl-, hydrochloride	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	100 (45.4)
Benzenamine, 4-nitro-	5000 (2270)
Benzene	10 (4.54)
Benzene, 1-bromo-4-phenoxy-	100 (45.4)
Benzene, chloro-	100 (45.4)
Benzene, chloromethyl-	100 (45.4)
Benzene, 1,2-dichloro-	100 (45.4)
Benzene, 1,3-dichloro-	100 (45.4)
Benzene, 1,4-dichloro-	100 (45.4)
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro	1 (0.454)
Benzene, dichloromethyl-	5000 (2270)
Benzene, 1,3-diisocyanatomethyl	100 (45.4)
Benzene, dimethyl-	100 (45.4)
Benzene, m-dimethyl-	1000 (454)
Benzene, o-dimethyl-	1000 (454)
Benzene, p-dimethyl-	100 (45.4)
Benzene, hexachloro-	10 (4.54)
Benzene, hexahydro-	1000 (454)
Benzene, hydroxy-	1000 (454)
Benzene, methyl-	1000 (454)
Benzene, 1-methyl-2,4-dinitro-	10 (4.54)
Benzene, 2-methyl-1,3-dinitro-	100 (45.4)
Benzene, 1-methylethyl-	5000 (2270)
Benzene, nitro-	1000 (454)
Benzene, pentachloro-	10 (4.54)
Benzene, pentachloronitro-	100 (45.4)
Benzene, 1,2,4,5-tetrachloro-	5000 (2270)
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	1 (0.454)
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy)-	I (0.454)
Benzene, (trichloromethyl)	10 (4.54)
Benzene, 1,3,5-trinitro-	10 (4.54)
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-	10 (4.54)
alpha-hydroxy-, ethyl ester	, ,
Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	10 (4.54)
Benzenediamine, ar-methyl-	10 (4.54)
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	10 (4.54)
1,2-Benzenedicarboxylic acid, diethyl ester	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	5000 (2270)
1,2-Benzenedicarboxylic acid, dioctyl ester	5000 (2270)
1,3-Benzenediol	5000 (2270)
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-	1000 (454)
Benzeneethanamine, alpha,alpha-dimethyl-	5000 (2270)
Benzeneethanamine, alpha,alpha-dimethyl-	5000 (2270)
Benzenesulfonic acid chloride	100 (45.4)
Benzenesulfonyl chloride	100 (45.4)
Benzidine	100 (45.4)
Benziame	I (0.454)
1,2-Benzisothiazol-3(2H)-one,1,1-dioxide	100 (45.4)

Benzo[a]anthracene	10(4.54)
1,3-Benzodioxole, 5-(2-propenyl)-	10 (4.54)
1,3-Benzodioxole, 5-(2-propenyl)-	100 (45.4)
1,3-Benzodioxole, 5-propyl-	100 (45.4)
Benzo[b]fluoranthene	10 (4.54)
Benzo[k]fluoranthene	1 (0.454)
	5000 (2270)
Benzo[j,k]fluorene	100 (45.4)
Benzoic acid	5000 (2270)
Benzonitrile	5000 (2270)
Benzo[g,h,i]perylene	5000 (2270)
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl- butyl)-, & salts, when present at concentrations greater than 0.3%	100 (45.4)
Benzo[a]pyrene	I (0.454)
3,4-Benzopyrene	I (0.454)
p-Benzoquinone	10 (4.54)
Benzo [rst]pentaphene	10 (4.54)
Benzotrichloride	10 (4.54)
Benzoyl chloride	1000 (454)
1,2-Benzphenanthrene	
Benzyl chloride	100 (45.4)
Beryllium cents	100 (45.4)
Beryllium chloride	10 (4.54)
	1 (0.454)
Beryllium dust cents	10 (4.34)
Beryllium fluoride	1 (0.454)
Beryllium nitrate	1 (0.454)
alpha - BHC	10 (4.54)
beta - BHC	1 (0.454)
delta - BHC	I (0.454)
gamma - BHC	1 (0.454)
2,2'Bioxirane	10 (4.54)
Biphenyl	100 (45.4)
(1,1'-Biphenyl)-4,4'-diamine	I (0.454)
(1,1'-Biphenyl)-4,4'-diamine,3,3'-dichloro-	1 (0.454)
(1,1'-Biphenyl)-4,4'-diamine,3,3'-dimethoxy-	10 (4.54)
(1,1'-Biphenyl)-4,4'-diamine,3,3'-dimethyl-	10 (4.54)
Bis(2-chloroethoxy) methane	1000 (454)
Bis(2-chloroethyl) ether	10 (4.54)
Bis(2-ethylhexyl)phthalate	100 (45.4)
Bromoacetone	1000 (454)
Bromoform	100 (45.4)
4-Bromophenyl phenyl ether	100 (45.4)
Brucine	100 (45.4)
1,3-Butadiene	IO (4.54)
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	I (0.454)
1-Butanamine, N-butyl-N-nitroso-	10 (4.54)
1-Butanol	5000 (2270)
2-Butanone	5000 (2270)
2-Butanone, 3,3-dimethyl-1-(methylthio)-,O-	100 (45.4)
[(methylamino)carbonyl] oxime	
2-Butanone peroxide	10 (4.54)
2-Butenal	100 (45.4)
2-Butene, 1,4-dichloro-	I (0.454)
2-Butenoic acid, 2-methyl-,7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-	10 (4.54)
methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl	
ester, [1S-[1alpha(Z),7(2S*, 3R*), 7alpha]]-	5000 (2250)
Butyl acetate	5000 (2270)
iso-Butyl acetate sec-Butyl acetate tert-Butyl acetate	5000 (2270)

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D. 1111	5000 (2270)
n-Butyl alcohol	5000 (2270)
Butylamine	1000 (454)
iso-Butylamine	
sec-Butylamine	
tert-Butylamine	100 (45.1)
Butyl benzyl phthalate	100 (45.4)
n-Butyl phthalate	10 (4.54)
Butyric acid	5000 (2270)
iso-Butyric acid	I (0.454)
Cacodylic acid	
Cadmium cents	10 (4.54)
Cadmium acetate	10 (4.54)
Cadmium bromide	10 (4.54)
Cadmium chloride	10 (4.54)
Calcium arsenate	I (0.454)
Calcium arsenite	I (0.454)
Calcium carbide	10 (4.54)
Calcium chromate	10 (4.54)
Calcium cyanamide	1000 (454)
Calcium cyanide	10 (4.54)
Calcium cyanide Ca(CN)2	10 (4.54)
Calcium dodecylbenzene sulfonate	1000 (454)
Calcium hypochlorite	10 (4.54)
Camphene, octachloro-	I (0.454)
Caprolactam	5000 (2270)
Captan	10 (4.54)
Carbamic acid, ethyl ester	100 (45.4)
Carbamic acid, ethyl ester Carbamic acid, methylnitroso-, ethyl ester	I (0.454)
Carbamic acid, methylmiroso-, ethyl ester	I (0.454)
	10 (4.54)
Carbamide, thio-	1000 (454)
Carbamimidoselenoic acid	100 (45.4)
Carbamothioic acid, bis (1-methylethyl)-, S-(2,3-	100 (43.4)
dichloro-2-propenyl) ester	100 (45.4)
Carbaryl	100 (45.4)
Carbofuran	10 (4.54)
Carbon bisulfide	100 (45.4)
Carbon disulfide	100 (45.4)
Carbonic acid, dithallium (I+)	100 (45.4)
Carbonic dichloride	10 (4.54)
Carbonic difluoride	1000 (454)
Carbonochloridic acid, methyl ester	1000 (454)
Carbon oxyfluoride	1000 (454)
Carbon tetrachloride	10 (4.54)
Carbonyl sulfide	100 (45.4)
Catechol	100 (45.4)
Chloral	5000(2270)
Chloramben	100 (45.4)
Chlorambucil	10 (4.54)
Chlordane	I (0.454)
Chlordane, alpha & gamma isomers	I (0.454)
Chlordane technical	I (0.454)
Chlorine	10 (4.54)
Chlornaphazine 3	100 (45.4)
Chloroacetaldehyde	1000 (454)
Chloroacetic acid-i	100 (45.4)
2-Chloroacetophenone	100 (45.4)
p-Chloroaniline	1000 (454)
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Chland	
Chlorobenzene	100 (45.4)
Chlorobenzilate	10 (4.54)
4-Chloro-m-cresol	5000 (2270)
p-Chloro-m-cresol	5000 (2270)
Chlorodibromomethane	100 (45.4)
Chloroethane	100 (45.4)
2-Chloroethyl vinyl ether	1000 (454)
Chloroform	10 (4.54)
Chloromethane	100 (45.4)
Chloromethyl methyl ether	1 (0.454)
beta-Chloronaphthalene	, 5000 (2270)
2-Chloronaphthalene	5000 (2270)
2-Chlorophenol	100 (45.4)
o-Chlorophenol	100 (45.4)
4-Chlorophenyl phenyl ether	5000 (2270)
1-(o-Chlorophenyl)thiourea	100 (45.4)
Chloroprene	100 (45.4)
3-Chloropropionitrile	1000 (454)
Chlorosulfonic acid	1000 (454)
4-Chloro-o-toluidine, hydrochloride	100 (45.4)
Chlorpyrifos	1 (0.454)
Chromic acetate	1000 (454)
Chromic acid	10 (4.54)
Chromic acid H2CrO4, calcium salt	10 (4.54)
Chromic sulfate	1000 (454)
Chromium cents	5000 (2270)
Chromous chloride	1000 (454)
Chrysene	100 (45.4)
Cobaltous bromide	1000 (454)
Cobaltous formate	1000 (454)
Cobaltous sulfamate	1000 (454)
Coke Oven Emissions	1 (0.454)
Copper cents	5000 (2270)
Copper chloride	10 (4.54)
Copper cyanide	10 (4.54)
Copper cyanide CuCN	10 (4.54)
Coumaphos	10 (4.54)
Creosote	
Cresols (isomers and mixture)	1 (0.454)
m-Cresol	100 (45.4)
o-Cresolo	100 (45.4)
p-Cresol	100 (45.4)
Cresylic acid (isomers and mixture)	100 (45.4)
m-Cresylic acid	100 (45.4)
o-Cresylic acid	100 (45.4)
p-Cresylic acid	100 (45.4)
	100 (45.4)
Crotonaldehyde	100 (45.4)
Cupric acetate	5000 (2270)
Cupric acetate	100 (45.4)
Cupric acetoarsenite	I (0.454)
Cupric chloride	10 (4.54)
Cupric nitrate	100 (45.4)
Cupric oxalate	100 (45.4)
Cupric sulfate	10 (4.54)
Cupric sulfate ammoniated	100 (45.4)
Cupric tartrate	100 (45.4)

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Cyanides (soluble salts and complexes) not otherwise	10 (4.54)
specified	10 (300 3)
Cyanogen	100 (45.4)
Cyanogen bromide	1000 (454)
Cyanogen bromide (CN)Br	1000 (454)
Cyanogen chloride	10 (4.54)
Cyanogen chloride (CN)Cl	10 (4.54)
2,5-Cyclohexadiene-1,4-dione	10 (4.54)
Cyclohexane	1000 (454)
Cyclohexane, 1,2,3,4,5,6-hexachloro-,	I (0.454)
(1alpha,2alpha,3beta,4alpha,5alpha,6beta)-	
Cyclohexanone	5000 (2270)
2-Cyclohexyl-4,6-dinitrophenol	100 (45.4)
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	10 (4.54)
Cyclophosphamide	10 (4.54)
2,4-D Acid	100 (45.4)
2,4-D Ester	100 (45.4)
Daunomycin	10 (4.54)
DDD	I (0.454)
4,4'-DDD	I (0.454)
DDE	5000 (2270)
4,4'-DDE	5000 (2270)
DDE	I (0.454)
4,4'-DDE	I (0.454)
DDT	1 (0.454)
4,4'-DDT	I (0.454)
Diallate	100 (45.4)
Diamine	1 (0.454)
Diazinon	I (0.454)
Diazomethane	100 (45.4)
Dibenz[a,h]anthracene	I (0.454)
1,2:5,6-Dibenzanthracene	I (0.454)
Dibenzo[a,h]anthracene	1 (0.454)
Dibenzofuran	100 (45.4)
Dibenz[a,i]pyrene	10 (4.54)
1,2-Dibromo-3-chloropropane	1 (0.454)
Dibutyl phthalate	10 (4.54)
Di-n-butyl phthalate	10 (4.54)
Dicamba	1000 (454)
Dichlobenil	100 (45.4)
Dichlone	I (0.454)
Dichlorobenzene	100 (45.4)
1,2-Dichlorobenzene	100 (45.4)
1,3-Dichlorobenzene	100 (45.4)
1,4-Dichlorobenzene	100 (45.4)
m-Dichlorobenzene	100 (45.4)
o-Dichlorobenzene	100 (45.4)
p-Dichlorobenzene	100 (45.4)
3,3'-Dichlorobenzidine	I (0.454)
Dichlorobromomethane	5000 (2270)
1,4-Dichloro-2-butene	1 (0.454)
Dichlorodifluoromethane	5000 (2270)
1,1-Dichloroethane	1000 (454)
1,2-Dichloroethane	100 (45.4)
1,1-Dichloroethylene	100 (45.4)
1,2aDichlorôethýlene	1000 (454)

Dichloroethyl ether	10 (4.54)
Dichloroisopropyl—ether	1000 (454)
Dichloromethane @	1000 (454)
Dichloromethoxy ethane	1000 (454)
Dichloromethyl ether	1 (0.454)
2,4-Dichlorophenol	100 (45.4)
2,6-Dichlorophenol	100 (45.4)
Dichlorophenylarsine	1 (0.454)
Dichloropropane	1000 (454)
1,1-Dichloropropane	1000 (454)
1,3-Dichloropropane	1000 (454)
1,2-Dichloropropane	1000 (454)
Dichloropropane - Dichloropropene (mixture)	100 (45.4)
Dichloropropene	100 (45.4)
2,3-Dichloropropene	100 (45.4)
1,3-Dichloropropene	100 (45.4)
2,2-Dichloropropionic acid	5000 (2270)
Dichlorvos	10 (4.54)
Dicofol	10 (4.54)
Dieldrin	I (0.454)
1,2:3,4-Diepoxybutane	10 (4.54)
Diethanolamine	10(4.54)
Diethylamine	
N,N-diethylaniline	1000 (454)
Diethylarsine	1000 (454)
1,4-Diethylenedioxide	1 (0.454)
Diethylhexyl phthalate	100 (45.4)
N,N'-Diethylhydrazine	100 (45.4)
O,O-Diethyll S-methyl dithiophosphate	10 (4.54)
Diethyl-p-nitrophenyl phosphate	5000 (2270)
Diethyl phthalate	100 (45.4)
	1000(454)
O,O-Diethyl O-pyrazinyl phosphorothioate Diethylstilbestrol	100 (45.4)
	I (0.454)
Diethyl sulfate	10 (4.54)
Dihydrosafrole	10 (4.54)
Diisopropyl fluorophosphate	100 (45.4)
1,4,5,8-Dimethanonaphthalene	1 (0.454)
1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro,	
(1alpha,4alpha,4abeta,5abeta,8beta,8abeta)-	
1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-10-hexachloro-	I (0.454)
1,4,4a,5,8,8a-hexahydro-	
(1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)	
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-	1 (0.454)
hexachloro-1a,2,2a,3,6,6a,7,7a octahydro-	
(1aalpha,2beta,2abeta,3alpha,6alpha,6abeta, 7beta,7aalpha)-	
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-	1 (0.454)
hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-	
,(1aalpha,2beta,2aalpha,3beta,6beta,6aalpha, 7beta,7aalpha)-	
Dimothoata	
Dimethoate	10 (4.54)
3,3'-Dimethoxybenzidine	10 (4.54)
Dimental	
Dimethylamine	1000 (454)
p-Dimethylaminoazobenzene	1000 (454) 10 (4.54)
p-Dimethylaminoazobenzene N,N-dimethylaniline	1000 (454) 10 (4.54) 100 (45.4)
p-Dimethylaminoazobenzene N,N-dimethylaniline 7,12-Dimethylbenz[a]anthracene	1000 (454) 10 (4.54) 100 (45.4) I (0.454)
p-Dimethylaminoazobenzene N,N-dimethylaniline	1000 (454) 10 (4.54) 100 (45.4)

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100 (45.4)
1000 (454)
100 (45.4)
1000 (454)
I (0.454)
1 (0.454)
1000 (454)
100 (45.4)
100 (45.4)
100 (454)
100 (45.4)
10 (4.54)

Ethane, pentachloro-	10 (4.54)
Ethane, 1,1,1,2-tetrachloro-	100 (45.4)
	<u> </u>
Ethane, 1,1,2,2-tetrachloro-	100 (45.4)
Ethane, 1,1,2-trichloro	100 (45.4)
Ethane, 1,1,1-trichloro-	1000 (454)
1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-	5000 (2270)
thienyl-methyl)-	
Ethanedinitrile	100 (45.4)
Ethanenitrile	5000 (2270)
Ethanethioamide	10 (4.54)
Ethanimidothioic acid, N-[[(methylamino)carbonyl] oxy]-,	100 (45.4)
methyl ester	
Ethanol, 2-ethoxy-	1000 (454)
Ethanol, 2,2'-(nitrosoimino)bis-	1 (0.454)
Ethanone, 1-phenyl-	5000 (2270)
Ethanoyl chloride	5000 (2270)
Ethene, chloro-	I (0.454)
Ethene, 2-chloroethoxy-	1000 (454)
Ethene, 1,1-dichloro-	100 (45.4)
Ethene, 1,2-dichloro- (E)	1000 (454)
Ethene, tetrachloro-	100 (45.4)
Ethene, trichloro-	100 (45.4)
Ethion	10 (4.54)
Ethyl acetate	5000 (2270)
Ethyl acrylate	1000 (454)
Ethylbenzene	1000 (454)
Ethyl carbamate (Urethan)	100 (45.4)
Ethyl chloride @	100 (45.4)
Ethyl cyanide	10 (4.54)
Ethylene dibromide	I (0.454)
Ethylene dichloride	100 (45.4)
Ethylene glycol	5000 (2270)
Ethylene glycol monoethyl ether	1000 (454)
Ethylene oxide	
	10 (4.54)
Ethylenebisdithiocarbamic acid	5000 (2270)
Ethylenebisdithiocarbamic acid, salts and esters	5000 (2270)
Ethylenediamine	5000 (2270)
Ethylenediamine tetraacetic acid (EDTA)	5000 (2270)
Ethylenethiourea	10 (4.54)
Ethylenimine	I (0.454)
Ethyl ether	100 (45.4)
Ethylidene dichloride	1000 (454)
Ethyl methacrylate	1000 (454)
Ethyl methanesulfonate	1 (0.454)
Ethyl methyl ketone @	5000 (2270)
Famphurdimethylester	1000 (454)
Ferric ammonium citrate	1000 (454)
Ferric ammonium oxalate	1000 (454)
Ferric chloride	1000 (454)
Ferric fluoride	100 (45.4)
Ferric nitrate	1000 (454)
Ferric sulfate	1000 (454)
Ferrous ammonium sulfate	1000 (454)
Ferrous chloride	100 (45.4)
Ferrous sulfate	1000 (454)
Fluoranthene	100 (45.4)
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Fluorene	5000 (2270)
Fluorine	10 (4.54)
Fluoroacetamide	100 (45.4)
Fluoroacetic acid, sodium salt	10 (4.54)
Formaldehyde	100 (45.4)
Formic acid	5000 (2270)
Fulminic acid, mercury(2+)salt	10 (4.54)
Fumaric acid	5000 (2270)
Furan	100 (45.4)
Furan, tetrahydro-	1000 (454)
2-Furancarboxaldehyde	5000 (2270)
2,5-Furandione	5000 (2270)
Furfural	5000 (2270)
Furfuran	100 (45.4)
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	1 (0.454)
D-Glucose, 2-deoxy-2-[[methylnitrosoamino)-	1 (0.454)
carbonyl]amino]-	
Glycidylaldehyde	10 (4.54)
Guanidine, N-methyl-N'-nitro-N-nitroso-	10 (4.54)
Guthion	1 (0.454)
Heptachlor	1 (0.454)
Heptachlor epoxide	I (0.454)
Hexachlorobenzene	10 (4.54)
Hexachlorobutadiene	I (0.454)
Hexachlorocyclohexane (gamma isomer)	I (0.454)
Hexachlorocyclopentadiene Hexachlorocyclopentadiene	10 (4.54)
Hexachloroethane	100 (45.4)
1,2,3,4,10-10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-	1 (0.454)
endo, exo-dimethanonaphthalene	1 (0.131)
Hexachlorophene	100 (45.4)
Hexachloropropene	1000 (454)
Hexaethyl tetraphosphate	100 (45.4)
Hexamethylene-1,6-diisocyanate	100 (45.4)
Hexamethylphosphoramide	I (0.454)
Hexane	5000 (2270)
Hydrazine	1 (0.454)
Hydrazine, 1,2-diethyl-	10 (4.54)
Hydrazine, 1,1-dimethyl-	10 (4.54)
Hydrazine, 1,2-dimethyl-	I (0.454)
Hydrazine, 1,2-dimetryl-	10 (4.54)
Hydrazine, nethyl-	10 (4.54)
Hydrazine, metnyi- Hydrazinecarbothioamide	100 (45.4)
Hydrochloric acid	5000 (2270)
Hydrocyanic acid	10 (4.54)
Hydrofluoric acid	100 (45.4)
Hydrogen chloride	5000 (2270)
Hydrogen cyanide	10 (4.54)
Hydrogen fluoride	100 (45.4)
Hydrogen phosphide	100 (45.4)
Hydrogen sulfide	
Hydrogen sulfide H2S	100 (45.4)
"Hydroperoxide,"1-methyl-1-phenylethyl-	10 (4.54)
Hydroquinone	100 (45.4)
2-Imidazolidinethione	10 (4.54)
Indeno(1,2,3-cd)pyrene	100 (45.4)
1,3-Isobenzofurandione	5000 (2270)

Isobutyl alcohol	5000 (2270)
Isodrin	
Isophorone	. I (0.454) .5000 (2270)
Isoprene	
Isopropanolamine dodecylbenzene sulfonate	100 (45.4)
Isosafrole	1000 (454)
3(2H)-Isoxazolone, 5-(aminomethyl)-	100 (45.4)
Keponedecachloroc-tahydro-	1000 (454)
Lasiocarpine	1 (0.454)
Lead cents	10 (4.54)
Lead acetate	10 (4.54)
Lead arsenate	10 (4.54)
	1 (0.454)
Lead, bis(acetato-O)tetrahydroxytri Lead chloride	10 (4.54)
	10 (4.54)
Lead fluoborate	10 (4.54)
Lead fluoride	10 (4.54)
Lead iodide	10 (4.54)
Lead nitrate	10 (4.54)
Lead phosphate	10 (4.54)
Lead stearate	10 (4.54)
Lead subacetate	10 (4.54)
Lead sulfate	10 (4.54)
Lead sulfide	10 (4.54)
Lead thiocyanate	10 (4.54)
Lindane	I (0.454)
Lithium chromate	10 (4.54)
Malathion	100 (45.4)
Maleic acid	5000 (2270)
Maleic anhydride	5000 (2270)
Maleic hydrazide	5000 (2270)
Malononitrile	1000 (454)
MDI	5000 (2270)
Melphalan	I (0.454)
Mercaptodimethur	10 (4.54)
Mercuric cyanide	1 (0.454)
Mercuric nitrate	10 (4.54)
Mercuric sulfate	10 (4.54)
Mercuric thiocyanate	10 (4.54)
Mercurous nitrate	10 (4.54)
Mercury	1 (0.454)
Mercury, (acetato-O)phenyl-	100 (45.4)
Mercury fulminate	10 (4.54)
Methacrylonitrile	1000 (454)
Methanamine, N-methyl-	1000 (454)
Methanamine, N-methyl-N-nitroso	10 (4.54)
Methane, bromo-	1000 (454)
Methane, chloro-	100 (45.4)
Methane, chloromethoxy-	1 (0.454)
Methane, dibromo-	1000 (454)
Methane, dichloro-	1000 (454)
Methane, dichlorodifluoro-	5000 (2270)
Methane, iodo-	100 (45.4)
Methane, isocyanato-	10 (4.54)
Methane, oxybis(chloro-	1 (0.454)
Methane, tetrachloro-	10 (4.54)
Methane, tetranitro-	10 (4.54)
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Methane, tribromo-	100 (45.4)
Methane, trichloro-	10 (4.54)
Methane, trichlorofluoro-	5000 (2270)
Methanesulfenyl chloride, trichloro-	100 (45.4)
Methanesulfonic acid, ethyl ester	I (0.454)
Methanethiol	100 (45.4)
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-	I (0.454)
	1 (0.434)
hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	5000 (2270)
Methanoic acid	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-	1 (0.434)
a,4,7,7a-tetrahydro-	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-octachloro-	1 (0.454)
2,3,3a,4,7,7a-hexahydro-	5000 (2270)
Methanol	5000 (2270)
Methapyrilene	5000 (2270)
1,3,4-Metheno-2H-cyclobutal[cd]-pentalen-2-one,	I (0.454)
1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-	
Methomyl	100 (45.4)
Methoxychlor	I (0.454)
Methyl alcohol	5000 (2270)
Methylamine @	100 (45.4)
Methyl bromide	1000 (454)
1-Methylbutadiene	100 (45.4)
Methyl chloride	100 (45.4)
Methyl chlorocarbonate	1000 (454)
Methyl chloroform	1000 (454)
Methyl chloroformate	1000 (454)
Methylchloromethyl ether @	I (0.454)
3-Methylcholanthrene	10 (4.54)
4,4'-Methylenebis(2-chloroaniline)	10 (4.54)
Methylene bromide	1000 (454)
Methylene chloride	1000 (454)
4,4'-Methylenedianiline	10 (4.54)
Methylene diphenyl diisocyanate	5000 (2270)
Methylene oxide	100 (45.4)
Methyl ethyl ketone (MEK)	5000 (2270)
Methyl ethyl ketone peroxide	10 (4.54)
Methyl hydrazine	10 (4.54)
Methyl iodide	100 (45.4)
Methyl isobutyl ketone	5000 (2270)
Methyl isocyanate	10 (4.54)
2-Methyllactonitrile	10 (4.54)
Methyl mercaptan	100 (45.4)
Methyl methacrylate	1000 (454)
Methyl parathion	100 (45.4)
4-Methyl-2-pentanone	5000 (2270)
Methyl tert-butyl ether	1000 (454)
Methylthiouracil	10 (4.54)
Mevinphos	10 (4.54)
Mexacarbate	1000 (454)
Mitomycin C) I	10 (4.54)
MNNG	10 (4.54)
Monoethylamine	100 (45.4)
Monomethylamine	100 (45.4)
Muscimol(7)M(1	1000 (454)
Naled ATOPINIONINA	10 (4.54)
5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6-	10 (4.54)

trideoxy-alpha-L-lyxo-hexopyranosyl) oxy]-7,8,9,10-	
tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	
Naphthalenamine, N,N-bis(2-chloroethyl)-	100 (45.4)
Naphthalene	100 (45.4)
Naphthalene, 2-chloro-	5000 (2270)
1,4-Naphthalenedione	5000 (2270)
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'- dimethyl-	10 (4.54)
(l,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-	10 (1.51)
tetrasodium salt	
Naphthenic acid	100 (45.4)
1,4-Naphthoquinone	5000 (2270)
alpha-Naphthylamine	100 (45.4)
beta-Naphthylamine	1 (0.454)
1-Naphthylamine	100 (45.4)
2-Naphthylamine	1 (0.454)
alpha-Naphthylthiourea	100 (45.4)
Nickel cents	100 (45.4)
Nickel ammonium sulfate	100 (45.4)
Nickel carbonyl	10 (4.54)
Nickel carbonyl Ni(CO)4,(T-4)-	10 (4.54)
Nickel chloride	100 (45.4)
Nickel cyanide	10 (4.54)
Nickel cyanide Ni(CN)2	10 (4.54)
Nickel hydroxide	IO (4.54)
Nickel nitrate	100 (45.4)
Nickel sulfate	100 (45.4)
Nicotine and salts	100 (45.4)
Nitric acid	1000 (454)
Nitric acid, thallium(1+) salt	100 (45.4)
Nitric oxide	10 (4.54)
p-Nitroaniline	5000 (2270)
Nitrobenzene	1000 (454)
4-nitrobiphenyl	10 (4.54)
Nitrogen dioxide	10 (4.54)
Nitrogen oxide NO	10 (4.54)
Nitrogen oxide NO2	10 (4.54)
Nitroglycerine	10 (4.54)
Nitrophenol (mixed)	100 (45.4)
m-	
0-	
p-	100 (45.4)
o-Nitrophenol	100 (45.4)
p-Nitrophenol 2-Nitrophenol	100 (45.4)
4-Nitrophenol	100 (45.4)
2-Nitropropane	100 (45.4)
N-Nitrosodi-n-butylamine	10 (4.54)
N-Nitrosodi-fi-outylamine N-Nitrosodiethanolamine	10 (4.54)
N-Nitrosodiethylamine N-Nitrosodiethylamine	I (0.454)
N-Nitrosodimethylamine	10 (4.54)
N-Nitrosodiphenylamine	100 (45.4)
N-Nitroso-N-ethylurea	I (0.454)
N-Nitroso-N-methylurea	I (0.454)
N-Nitroso-N-methylurethane	I (0.454)
N-Nitrosomethylvinylamine	10 (4.54)
n-Nitrosomorpholine	I (0.454)
N-Nitrosopiperidine	10 (4.54)
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N-Nitrosopyrrolidine	1 (0.454)
Nitrotoluene	1000 (4.54)
m-Nitrotoluene	1000 (4.54)
o-Nitrotoluene	1000 (4.54)
p-Nitrotoluene	1000 (4.54)
5-Nitro-o-toluidine	100 (45.4)
Octamethylpyrophosphoramide	100 (45.4)
Osmium oxide OsO4 (T-4)-	1000 (454)
Osmium tetroxide	1000 (454)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	1000 (454)
1,2-Oxathiolane, 2,2-dioxide	10 (4.54)
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-	10 (4.54)
chloroethyl)tetrahydro-, 2-oxide	
Oxirane	10 (4.54)
Oxiranecarboxyaldehyde	10 (4.54)
Oxirane, (chloromethyl)-	100 (45.4)
Paraformaldehyde	1000 (454)
Paraldehyde	1000 (454)
Parathion	10 (4.54)
Pentachlorobenzene	10 (4.54)
Pentachloroethane	10 (4.54)
Pentachloronitrobenzene (PCNB)	100 (45.4)
Pentachlorophenol	10 (4.54)
1,3-Pentadiene	100 (45.4)
Perchloroethylene	100 (45.4)
Perchloromethyl mercaptan @	100 (45.4)
Phenacetin	100 (45.4)
Phenanthrene	5000 (2270)
Phenol	1000 (454)
Phenol, 2-chloro-	100 (45.4)
Phenol, 4-chloro-3-methyl-	5000 (2270)
Phenol, 2-cyclohexyl-4,6-dinitro-	100 (45.4)
Phenol, 2,4-dichloro-	100 (45.4)
Phenol, 2,6-dichloro-	100 (45.4)
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	I (0.454)
Phenol, 2,4-dimethyl-	100 (45.4)
Phenol, 2,4-dinitro-	10 (4.54)
Phenol, methyl-	100 (45.4)
Phenol, 2-methyl-4,6-dinitro-	IO (4.54)
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	100 (45.4)
Phenol, 2-(1-methylpropyl)-4,6-dinitro	1000 (454)
Phenol, 4-nitro-	100 (45.4)
Phenol, pentachloro-	10 (4.54)
Phenol, 2,3,4,6-tetrachloro-	10 (4.54)
Phenol, 2,4,5-trichloro	10 (4.54)
Phenol, 2,4,6-trichloro-	10 (4.54)
Phenol, 2,4,6-trinitro-, ammonium salt	10 (4.54)
L-Phenylalanine, 4-[bis(2-chloroethyl)aminol]	I (0.454)
p-Phenylenedimine	5000 (2270)
1,10-(1,2-Phenylene)pyrene	100 (45.4)
Phenyl mercaptan @	100 (45.4)
Phenylmercuric acetate	100 (45.4)
Phenylthiourea	100 (45.4)
Phoratè	10 (4.54)
Phosgene	10 (4.54)
Phosphine (1914)	100 (45.4)

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Phosphoric acid	5000 (2270)
Phosphoric acid, diethyl 4-nitrophenyl ester	100 (45.4)
Phosphoric acid, lead(2+) salt (2:3)	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-[2-	1 (0.454)
(ethylthio)ethyl]ester	7,7,1
Phosphorodithioic acid, O,O-diethyl S-(ethylthio),	10 (4.54)
methyl ester	
Phosphorodithioic acid, O,O-diethyl S-methyl ester	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2 (methylamino)-	10 (4.54)
2-oxoethyl] ester	
Phosphorofluoridic acid, bis(1-methylethyl) ester	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl)	10 (4.54)
ester	
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	100 (45.4)
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl)	100 (45.4)
ester	
Phosphorothioic acid, O,[4-[(dimethylamino)sulfonyl]	1000 (454)
phenyl] O,O-dimethyl ester	
Phosphorus	I (0.454)
Phosphorus oxychloride	1000 (454)
Phosphorus pentasulfide	100 (45.4)
Phosphorus sulfide	100 (45.4)
Phosphorus trichloride	1000 (454)
Phthalic anhydride	5000 (2270)
2-Picoline	5000 (2270)
Piperidine, 1-nitroso-	10 (4.54)
Plumbane, tetraethyl-	10 (4.54)
POLYCHLORINATED BIPHENYLS (PCBs)	I (0.454)
Potassium arsenate	I (0.454)
Potassium arsenite	I (0.454)
Potassium bichromate	10 (4.54)
Potassium chromate	10 (4.54)
Potassium cyanide	10 (4.54)
Potassium cyanide K(CN)	10 (4.54)
Potassium hydroxide	1000 (454)
Potassium permanganate	100 (45.4)
Potassium silver cyanide	1 (0.454)
Pronamide	5000 (2270)
Propanal, 2-methyl-2-(methylthio)-,O-	1 (0.454)
[(methylamino)carbonyl]oxime	` ′
1-Propanamine	5000 (2270)
1-Propanamine, N-nitroso-N-propyl-	10 (4.54)
1-Propanamine, N-propyl-	5000 (2270)
Propane, 1,2-dibromo-3-chloro-	I (0.454)
Propane, 1,2-dichloro-	1000 (454)
Propane, 2-nitro-	10 (4.54)
Propane, 2,2'-oxybis [2-chloro-	1000 (454)
1,3-Propane sultone	10 (4.54)
Propanedinitrile	1000 (454)
Propanenitrile	10 (4.54)
Propanenitrile, 3-chloro-	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl-	10 (4.54)
1,2,3-Propanetriol, trinitrate-	10 (4.54)
1-Propanol, 2,3-dibromo-, phosphate (3:1)	10 (4.54)
1-Propanol, 2,5-dibromo-, phosphate (3:1)	5000 (2270)
2-Propanone	5000 (2270)
	
2-Propanone, 1-bromo-	1000 (454)

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Propargite	10 (4.54)
Propargyl alcohol	1000 (454)
2-Propenal	1 (0.454)
2-Propenamide	5000 (2270)
1-Propene, 1,3-dichloro-	100 (45.4)
1-Propene, 1,1,2,3,3,3-hexachloro-	1000 (454)
2-Propenenitrile	100 (45.4)
	1000 (454)
2-Propenenitrile, 2-methyl- 2-Propenoic acid	5000 (2270)
	1000 (454)
2-Propenoic acid, ethyl ester	1000 (454)
2-Propenoic acid, 2-methyl-, ethyl ester	1000 (454)
2-Propenoic acid, 2-methyl-, methyl ester	
2-Propen-1-ol	100 (45.4)
beta-Propioaldehyde	1000 (454)
Propionic acid	5000 (2270)
Propionic acid, 2-(2,4,5-trichlorophenoxy)-	100 (45.4)
Propionic anhydride	5000 (2270)
Propoxur (baygon)	100 (45.4)
n-Propylamine	5000 (2270)
Propylene dichloride	1000 (454)
Propylene oxide	100 (45.4)
1,2-Propylenimine	1 (0.454)
2-Propyn-1-ol	1000 (454)
Pyrene	5000 (2270)
Pyrethrins	1 (0.454)
3,6-Pyridazinedione, 1,2-dihydro-	5000 (2270)
4-Pyridinamine	1000 (454)
Pyridine	1000 (454)
Pyridine, 2-methyl-	5000 (2270)
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)	100 (45.4)
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	10 (4.54)
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	10 (4.54)
Pyrrolidine, 1-nitroso-	I (0.454)
Quinoline	5000 (2270)
RADIONUCLIDES	See Appendix 4
Reserpine	5000 (2270)
Resorcinol	5000 (2270)
Saccharin and salts	100 (45.4)
Safrole	100 (45.4)
Selenious acid	10 (4.54)
Selenious acid, dithallium(1+) salt	1000 (454)
Selenium cents	100 (45.4)
Selenium dioxide	10 (4.54)
Selenium oxide	10 (4.54)
Selenium sulfide	10 (4.54)
Selenium sulfide SeS2	10 (4.54)
Selenourea	1000 (454)
L-Serine, diazoacetate (ester)	1 (0.454)
Silver cents	1000 (454)
Silver cyanide	I (0.454)
Silver cyanide Silver cyanide Ag(CN)	I (0.454)
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Silver nitrate	1 (0.454)
Silvex(2,4;5-TP): 17	100 (45.4)
Sodium	10 (4.54)
Sodium arsenate	I (0.454)
Sodium arsenite	I (0.454)

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Sodium azide	1000 (454)
Sodium bichromate	10 (4.54)
Sodium bifluoride	100 (45.4)
Sodium bisulfite	5000 (2270)
Sodium chromate	10 (4.54)
Sodium cyanide	10 (4.54)
Sodium cyanide Na(CN)	10 (4.54)
Sodium dodecylbenzene sulfonate	1000 (454)
Sodium fluoride	1000 (454)
Sodium hydrosulfide	5000 (2270)
Sodium hydroxide	1000 (454)
Sodium hypochlorite	100 (45.4)
Sodium methylate	1000 (454)
Sodium nitrite	100 (45.4)
Sodium phosphate, dibasic	5000 (2270)
Sodium phosphate, tribasic	5000 (2270)
Sodium selenite	100 (45.4)
Streptozotocin	. 1 (0.454)
Strontium chromate	10 (4.54)
Strychnidin-10-one	10 (4.54)
Strychnidin-10-one, 2,3-dimethoxy-	100 (45.4)
Strychnine and salts	10 (4.54)
Styrene	1000 (454)
Styrene oxide	100 (45.4)
Sulfur chloride @	1000 (454)
Sulfur monochloride	1000 (454)
Sulfur phosphide	100 (45.4)
Sulfuric acid	1000 (454)
Sulfuric acid, dimethyl ester	100 (45.4)
Sulfuric acid, dithallium(I+) salt	100 (45.4)
2,4,5-T	1000 (454)
2,4,5-T acid	1000 (454)
2,4,5-T amines	5000 (2270)
2,4,5-T esters	1000 (454)
2,4,5-T salts	1000 (454)
TDE	1 (0.454)
1,2,4,5-Tetrachlorobenzene	5000 (2270)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1 (0.454)
1,1,1,2-Tetrachloroethane	100 (45.4)
1,1,2,2-Tetrachloroethane	100 (45.4)
Tetrachloroethane @	100 (45.4)
Tetrachloroethene	100 (45.4)
Tetrachloroethylene	100 (45.4)
2,3,4,6-Tetrachlorophenol	
Tetraethyl lead	10 (4.54)
Tetraethyl pyrophosphate	10 (4.54)
Tetraethyldithiopyrophosphate	10 (4.54)
Tetrahydrofuran	100 (45.4)
Tetranitromethane	1000 (454)
Tetraphosphoric acid, hexaethyl ester	10 (4.54)
Thallic oxide	100 (45.4)
Thallium cents	100 (45.4)
Thallium(I) acetate	1000 (454)
Thallium(I) carbonate	100 (45.4)
Thallium(I) carbonate Thallium(I) chloride	100 (45.4)
	100 (45.4)
Thallium chloride TICl	100 (45.4)

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Thelli/I\ nitroto	100 (45.4)
Thallium(I) nitrate Thallium oxide T1203	100 (45.4)
Thallium selenite	1000 (454)
Thallium(I) sulfate	100 (45.4)
Thioacetamide	10 (4.54)
	100 (45.4)
Thiodiphosphoric acid, tetraethyl ester	100 (45.4)
Thiofanox	100 (45.4)
Thioimidodicarbonic diamide [(H2N)C(S)]2NH	100 (45.4)
Thiomethanol Thiomethanol	
Thioperoxydicarbonic diamide [(H2N)C(S)]2S2, tetramethyl-	10 (4.54)
Thiophenol	100 (45.4)
Thiosemicarbazide	100 (45.4)
Thiourea	10 (4.54)
Thiourea, (2-chlorophenyl)-	100 (45.4)
Thiourea, 1-naphthalenyl-	100 (45.4)
Thiourea, phenyl-	100 (45.4)
Thiram	10 (4.54)
Titanium tetrachloride	1000 (454)
Toluene	1000 (454)
Toluenediamine	10 (4.54)
Toluene diisocyanate	100 (45.4)
o-Toluidine	100 (45.4)
p-Toluidine	100 (45.4)
o-Toluidine hydrochloride	100 (45.4)
Toxaphene	I (0.454)
2,4,5-TP acid	100 (45.4)
2,4,5-TP acid esters	100 (45.4)
1H-1,2,4-Triazol-3-amine	10 (4.54)
Trichlorfon	100 (45.4)
1,2,4-Trichlorobenzene	100 (45.4)
1,1,1-Trichloroethane	1000 (454)
1,1,2-Trichloroethane	100 (45.4)
Trichloroethene	100 (45.4)
Trichloroethylene	100 (45.4)
	100 (45.4)
Trichloromethanesulfenyl chloride	5000 (2270)
Trichloromonofluoromethane	
Trichlorophenol	10 (4.54)
2,3,4-Trichlorophenol	
2,3,5-Trichlorophenol	
2,3,6-Trichlorophenol	
2,4,5-Trichlorophenol	
2,4,6-Trichlorophenol	
3,4,5-Trichlorophenol	10 (4.54)
2,4,5-Trichlorophenol	10 (4.54)
2,4,6-Trichlorophenol	10 (4.54)
Triethanolamine dodecylbenzene sulfonate	1000 (454)
Triethylamine	5000 (2270)
Trifluralin	10 (4.54)
Trimethylamine	100 (45.4)
2,2,4-Trimethylpentane	1000 (454)
1-3,5-Trinitrobenzene	10 (4.54)
1,3,5-Trioxane, 2,4,6-trimethyl-	1000 (454)
Tris(2,3-dibromopropyl) phosphate	10 (4.54)
Trypan blue U 111	10 (4.54)
Uracil mustard	10 (4.54)
Uranyl acetate MC	100 (45.4)
Uranyl hitrate / il/workyma	100 (45.4)

Urea, N-ethyl-N-nitroso-	I (0.454)
Urea, N-methyl-N-nitroso-	1 (0.454)
Vanadic acid, ammonium salt	1000 (454)
Vanadium oxide V205	1000 (454)
Vanadium pentoxide	1000 (454)
Vanadyl sulfate	1000 (454)
Vinyl acetate	5000 (2270)
Vinyl acetate monomer	5000 (2270)
Vinylamine, N-methyl-N-nitroso-	10 (4.54)
Vinyl bromide	100 (45.4)
Vinyl chloride	1 (0.454)
Vinylidene chloride	100 (45.4)
Warfarin, & salts, when present at concentrations greater than 0.3%	100 (45.4)
Xylene	100 (45.4)
m-Xylene	1000 (454)
o-Xylene	1000 (454)
p-Xylene	. 100 (45.4)
Xylene (mixed)	100 (45.4)
Xylenes (isomers and mixture)	100 (45.4)
Xylenol	1000 (454)
Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3,4,5-	5000 (2270)
trimethoxybenzoyl)oxy]-, methyl ester	[()
(3beta,16beta,17alpha,18beta,20alpha)	
Zinc cents	1000 (454)
Zinc acetate	1000 (454)
Zinc ammonium chloride	1000 (454)
Zinc borate	1000 (454)
Zinc bromide	1000 (454)
Zinc carbonate	1000 (454)
Zinc chloride	.1000 (454)
Zinc cyanide	10 (4.54)
Zinc cyanide Zn(CN)2	10 (4.54)
Zinc fluoride	1000 (454)
Zinc formate	1000 (454)
Zinc hydrosulfite	1000 (454)
Zinc nitrate	1000 (454)
Zinc phenolsulfonate	5000 (2270)
Zinc phosphide	100 (45.4)
Zinc phosphide Zn3P2, when present at concentrations greater than 10%	100 (45.4)
Zinc silicofluoride	5000 (2270)
Zinc sulfate	5000 (2270)
Zirconium nitrate	1000 (454)
Zirconium potassium fluoride	5000 (2270)
Zirconium sulfate	1000 (454)
Zirconium tetrachloride	5000 (2270)
Encontain tetraemonue	5000 (2270)

D001 Unlisted Hazardous Wastes Characteristic of Ignitability	100 (45.4)
D002 Unlisted Hazardous Wastes Characteristic of Corrosivity	100 (45.4)
D003 Unlisted Hazardous Wastes Characteristic of	100 (45.4)

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D004-D043 Unlisted Hazardous Wastes Characteris	stic of Toxicity
D004 Arsenic	1 (0.454)
D005 Barium	1000 (454)
D006 Cadmium	10 (4.54)
D007 Chromium	10 (4.54)
D008 Lead	10 (4.54)
D009 Mercury	1 (0.454)
D010 Selenium	10 (4.54)
D011 Silver	1 (0.454)
D012 Endrin	1 (0.454)
D013 Lindane	1 (0.454)
D014 Methoxychlor	1 (0.454)
D015 Toxaphene	1 (0.454)
D016 2,4-D	100 (45.4)
D017 2,4,5-TP	100 (45.4)
D018 Benzene	10 (4.54)
D019 Carbon tetrachloride	10 (4.54)
D020 Chlordane	1 (0.454)
D021 Chlorobenzene	100 (45.4)
D022 Chloroform	10 (4.54)
D023 o-Cresol	100 (45.4)
D024 m-Cresol	100 (45.4)
D025 p-Cresol	100 (45.4)
D026 Cresol	100 (45.4)
D027 1,4-Dichlorobenzene	100 (45.4)
D028 1,2-Dichloroethane	100 (45.4)
D029 1,1-Dichloroethylene	100 (45.4)
D030 2,4-Dinitrotoluene	10 (4.54)
D031 Heptachlor (and hydroxide)	1 (0.454)
D032 Hexachlorobenzene	10 (4.54)
D033 Hexachlorobutadiene	1 (0.454)
D034 Hexachloroethane	100 (45.4)
D035 Methyl ethyl ketone	5000 (2270)
D036 Nitrobenzene	1000 (454)
D037 Pentachlorophenol	10 (4.54)
D038 Pyridine	1000 (454)
D039 Tetrachloroethylene	100 (45.4)
D040 Tricholorethylene	100 (45.4)
D041 2,4,5-Trichlorophenol	10 (4.54)
D042 2,4,6-Trichlorophenol	10 (4.54)
D043 Vinyl chloride	1 (0.454)

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Γυσι	10 (4.54)	
The following spent halogenated solvents used in	degreasing; all spent solvent mixtures/b	plends used in degreasing containing,
before use, a total of ten percent or more (by volu	me) of one or more of the below listed I	nalogenated solvents or those solvents
listed in F002, F004 and F005; and still bottoms f	rom the recovery of these spent solvents	s and spent solvent
mixtures	100 (15 1)	
(a) Tetrachloroethylene	100 (45.4)	
(b) Trichloroethylene	100 (45.4)	C.
(c) Methylene chloride	1000 (454)	
(d) 1,1,1-Trichloroethane	1000 (454)	
(e) Carbon tetrachloride	10 (4.54)	
(f) Chlorinated fluorocarbons	5000 (2270)	
F002	10 (4.54)	
The following spent halogenated solvents; all spen	nt solvent mixtures/blends containing, b	efore use, a total of ten percent or
more (by volume) of one or more of the below lis	ted halogenated solvents or those listed	in F001, F004, F005; and still
bottoms from the recovery of these spent solvents		······
(a) Tetrachloroethylene	100 (45.4)	
(b) Methylene chloride	1000 (454)	•
(c) Trichloroethylene	100 (45.4)	
(d) 1,1,1-Trichloroethane	1000 (454)	
(e) Chlorobenzene	100 (45.4)	
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	5000 (2270)	
(g) o-Dichlorobenzene	100 (45.4)	
(h) Trichlorofluoromethane	5000 (2270)	
(i) 1,1,2 Trichloroethane	100 (45.4)	
T000		
F003	100 (45.4)	
The following spent non-halogenated solvents and		
(a) Xylene	1000 (454)	•
(b) Acetone	5000 (2270)	•
(c) Ethyl acetate	5000 (2270)	
(d) Ethylbenzene	1000 (454)	
(e) Ethyl ether	100 (45.4)	
(f) Methyl isobutyl ketone	5000 (2270)	
(g) n-Butyl alcohol	5000 (2270)	
(h) Cyclohexanone	5000 (2270)	
(i) Methanol	5000 (2270)	
F004	100 (17 1)	
F004	100 (45.4)	
The following spent non-halogenated solvents and	the still bottoms from the recovery of these sol	vents:
(a) Cresols/Cresylic acid	1000 (454)	
(b) Nitrobenzene	100 (45.4)	
Enns	100 (45.4)	
F005	100 (45.4)	•
The following spent non-halogenated solvents and	the still bottoms from the recovery of these sol	vents:
(a) Toluene	1000 (454)	
(b) Methyl ethyl ketone	5000 (2270)	
(c) Carbon disulfide	100 (45.4)	
(d) Isobutanol	5000 (2270)	* *
(e) Pyridine	1000 (454)	
F006		
	10 (4.54)	
Wastewater treatment sludges from electroplating	operations except from the following pr	rocesses: (1) sulfuric acid anodizing
of aluminum, (2) tin plating on carbon steel, (3) zi	nc plating (segregated basis) on carbons	steel, (4) aluminum or zinc-aluminum
plating on carbon steel, (5) cleaning/stripping assortching and milling of aluminum	clated with tin, zinc and aluminum plati	ing on carbon steel, and (6) chemical
and making of administration		900000 Allina Mana & a a a a a a a a a a a a a a a a a
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Spent cyanide plating bath solutions from electrop	lating operations	
1	vpc-actoria	JUL 0 3 2014
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Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process
F009
F010
F011
F012
F019
F020
F021
F022
F023
F024
F025

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FU26	1 (0.454)
Wastes (except wastewater and spent ca equipment previously used for the manu	rbon from hydrogen chloride purification) from the production of materials on facturing use (as a reactant, chemical intermediate, or component in a formulating penzene under alkaline conditions
compounds derived from these chloroph	1 (0.454) ng tri-, tetra-, or pentachlorophenol or discarded unused formulations containing enols. (This listing does not include formulations containing hexachlorophene lorophenol as the sole component.)
F028 Residues resulting from the incineration F022, F023, F026, and F027	1 (0.454) or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021,
F032	1 (0.454)
F034	1 (0.454)
F035	1 (0.454)
F037	1 (0.454)
F038	1 (0.454)
F039	1 (0.454)

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List of Hazardous Substances and Reportable Quantities

Appendix 4--Radionuclides

Radionuclide	Atomic Number	Reportable Quantitiy(RQ) Ci (TBq)
A -dinium 224	89	100 (3.7)
Actinium-224		• •
Actinium-225	89	1 (.037)
Actinium-226	89	10 (.37)
Actinium-227	89	0.001 (.000037)
Actinium-228	89	10 (.37)
Aluminum-26	13	10 (.37)
Americium-237	95	1000 (37)
Americium-238	95	100 (3.7)
Americium-239	95	100 (3.7)
Americium-240	95	10 (.37)
Americium-241	95	0.01 (.00037)
Americium-242	95	100 (3.7)
Americium-242m	95	0.01 (.00037)
Americium-243	95	0.01 (.00037)
Americium-244	95	10 (.37)
Americium-244m	95	1000 (37)
Americium-245	95	1000 (37)
Americium-246	95	1000 (37)
Americium-246m	95	1000 (37)
Antimony-115	51	1000 (37)
Antimony-116	51	1000 (37)
Antimony-116m	51	100 (3.7)
Antimony 11011	51	1000 (37)
Antimony-118m	51	10 (.37)
Antimony-119	51	1000 (37)
	51	1000 (37)
Antimony-120 (16 min)	51	, ,
Antimony-120 (5.76 day)		10 (.37)
Antimony-122	51	10 (.37)
Antimony-124	51	10 (.37)
Antimony-124m	51	1000 (37)
Antimony-125	51	10 (.37)
Antimony-126	51	10 (.37)
Antimony-126m	51	1000 (37)
Antimony-127	51	10 (.37)
Antimony-128 (10.4 min)	51	1000 (37)
Antimony-128 (9.01 hr)	51	10 (.37)
Antimony-129	51	100 (3.7)
Antimony-130	51	100 (3.7)
Antimony-131	51	1000 (37)
Argon-39	18	1000 (37)
Argon-41	18	10 (.37)
Arsenic-69	33	1000 (37)
Arsenic-70	33	100 (3.7)
Arsenic-71	33	100 (3.7)
Amonio 90 A 13	33	10 (.37)
Arsenic-73	33	100 (3.7)
	33	10 (.37)
Arsenic-74	33	100 (3.7)
Arsenic-77	33	1000 (37)
Arsenic-77 Arsenic-78 Voteling 2077	33	100 (3.7)
Asseme-707	85	100 (3.7)
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Astatine-211	85	100 (3.7)
Barium-126	56	1000 (37)
Barium-128	56	10 (.37)
Barium-131	56	10 (.37)
Barium-131m	56	1000 (37)
Barium-133	56	10 (.37)
Barium-133m	56	100 (3.7)
Barium-135m	56	100 (3.7)
Barium-139	56	
Barium-140	56	1000 (37)
Barium-141	56	10 (.37)
Barium-142		1000 (37)
Berkelium-245	56	1000 (37)
Berkelium-246	97	100 (3.7)
Berkelium-247	97	10 (.37)
Berkelium-249	97	0.01 (.00037)
	97	1 (.037)
Berkelium-250	97	100 (3.7)
Beryllium-10	4	1 (.037)
Beryllium-7	4	100 (3.7)
Bismuth-200	83	100 (3.7)
Bismuth-201	83	100 (3.7)
Bismuth-202	83	1000 (37)
Bismuth-203	83	10 (.37)
Bismuth-205	83	10 (.37)
Bismuth-206	83	10 (.37)
Bismuth-207	83	10 (.37)
Bismuth-210	83	10 (.37)
Bismuth-210m	83	0.1 (.0037)
Bismuth-212	83	100 (3.7)
Bismuth-213	83	100 (3.7)
Bismuth-214	83	100(3.7)
Bromine-74	35	100 (3.7)
Bromine-74m	35	100 (3.7)
Bromine-75	35	100 (3.7)
Bromine-76	35	10 (.37)
Bromine-77	35	100 (3.7)
Bromine-80	35	1000 (37)
Bromine-80m	35	1000 (37)
Bromine-82	35	10 (.37)
Bromine-83	35	1000 (37)
Bromine-84	35	100 (3.7)
Cadmium-104	48	1000 (37)
Cadmium-107	48	1000 (37)
Cadmium-109	48	1 (.037)
Cadmium-113	48	0.1 (.0037)
Cadmium-113m	48	0.1 (.0037)
Cadmium-115	48	100 (3.7)
Cadmium-115m	48	100 (3.7)
Cadmium-117	48	
Cadmium-117	48	100 (3.7)
Calcium-41	20	10 (.37)
Calcium-45	20	10 (.37)
Calcium-47		10 (.37)
Californium-244	20	10 (.37)
Californium-246	98	1000 (37)
Californium-248	98	10 (.37)
Californium-249	98	0.1 (.0037)
Californium-250	98	0.01 (.00037)
Californium-251	98	0.01 (.00037)
Camornium-251	98	0.01 (.00037)

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Californium-252	98	0.1 (.0037)
Californium-253	98	10 (.37)
Californium-254	98	0.1 (.0037)
Carbon-11	6	1000 (37)
Carbon-14	6	10 (.37)
Cerium-134	58	10 (.37)
Cerium-135	58	10 (.37)
Cerium-137	58	1000 (37)
Cerium-137	58	100 (3.7)
	58	
Cerium-139		100 (3.7)
Cerium-141	58	10 (.37)
Cerium-143	58	100 (3.7)
Cerium-144	58	1 (.037)
Cesium-125	55	1000 (37)
Cesium-127	55	100 (3.7)
Cesium-129	55	100 (3.7)
Cesium-130	55	1000 (37)
Cesium-131	55	1000 (37)
Cesium-132	55	10 (.37)
Cesium-134	55	1 (.037)
Cesium-134m	55	1000 (37)
Cesium-135	55	10 (.37)
Cesium-135m	55	100 (3.7)
Cesium-136	55	10 (.37)
Cesium-137	55	1 (.037)
Cesium-137	55	100 (3.7)
	17	10 (3.7)
Chlorine-36		
Chlorine-38	17	100 (3.7)
Chlorine-39	17	100 (3.7)
Chromium-48	24	100 (3.7)
Chromium-49	24	1000 (37)
Chromium-51	24	1000 (37)
Cobalt-55	27	10 (.37)
Cobalt-56	27	10 (.37)
Cobalt-57	27	100 (3.7)
Cobalt-58	27	10 (.37)
Cobalt-58m	27	1000 (37)
Cobalt-60	27	10 (.37)
Cobalt-60m	27	1000 (37)
Cobalt-61	27	1000 (37)
Cobalt-62m	27	1000 (37)
Copper-60	29	100 (3.7)
Copper-61	29	100 (3.7)
Copper-64	29	1000 (37)
Copper-67	29	100 (3.7)
Curium-238	96	100 (3.7)
Curium-240	96	1 (.037)
Curium-241		` '
	96	10 (.37)
Curium-242	96	1 (.037)
Curium-243	96	0.01 (.00037)
Curium-244	96	0.01 (.00037)
Curium-245	96	0.01 (.00037)
Curium-246	96	0.01 (.00037)
Curium-247	96	0.01 (.00037)
	96	0.001 (.000037)
Curium-249	96	1000 (37)
Dysprosium 155	66	100 (3.7)
Dysprosium-157	66	100 (3.7)
Dysprosium-159	66	100 (3.7)
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Dysprosium-165	66	1000 (37)
Dysprosium-166	66	10 (.37)
Einsteinium-250	99	10 (.37)
Einsteinium-251	99	1000 (37)
Einsteinium-253	99	10 (.37)
Einsteinium-254	99	0.1 (.0037)
Einsteinium-254m	99	1 (.037)
Erbium-161	68	100 (3.7)
Erbium-165	68	1000 (37)
Erbium-169	68	100 (3.7)
Erbium-171	68	100 (3.7)
Erbium-172	68	10 (.37)
Europium-145	63	10 (.37)
Europium-146	63	10 (.37)
Europium-147	63	10 (.37)
Europium-148	63	10 (.37)
Europium-149	63	100 (3.7)
Europium-150 (12.6 hr)	63	1000 (37)
Europium-150 (34.2 yr)	63	10 (.37)
Europium-152	63	10 (.37)
Europium-152m	63	100 (3.7)
Europium-154	63	10 (.37)
Europium-155	63	10 (.37)
Europium-156	63	10 (.37)
Europium-157	63	10 (.37)
Europium-158	63	1000 (37)
Fermium-252	100	10 (.37)
Fermium-253	100	10 (.37)
Fermium-254	100	100 (3.7)
Fermium-255	100	100 (3.7)
Fermium-257	100	1 (.037)
Fluorine-18	9	1000 (37)
Francium-222	87	100 (3.7)
Francium-223	87	100 (3.7)
Gadolinium-145	64	100 (3.7)
Gadolinium-146	64	10 (.37)
Gadolinium-147	64	10 (.37)
Gadolinium-148	64	0.001 (.000037)
Gadolinium-149	64	100 (3.7)
Gadolinium-151	64	100 (3.7)
Gadolinium-152	64	0.001 (.000037)
Gadolinium-153	64	10 (.37)
Gadolinium-159	64	1000 (37)
Gallium-65	31	1000 (37)
Gallium-66	31	10 (.37)
Gallium-67	31	100 (3.7)
Gallium-68	31	1000 (37)
Gallium-70	31	1000 (37)
Gallium-72	31	10 (.37)
Gallium-73	31	100 (3.7)
Germanium-66	32	100 (3.7)
Germanium-67	32	1000 (37)
Germanium-68	32	10 (.37)
Germanium-69	32	10 (.37)
Germanium-71	- 32	1000 (37)
Germanium-75	32	1000 (37)
Germanium-77	32	10 (.37)
Germanium-78	32	1000 (37)
Gold-193	79	100 (3.7)
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Gold-194	79	10 (.37)
Gold-195	79	100 (3.7)
Gold-198	79	100 (3.7)
Gold-198m	79	10 (.37)
Gold-199	79	100 (3.7)
Gold-200	79	1000 (37)
Gold-200m	79	10 (.37)
Gold-201	79	1000 (37)
Hafnium-170	72	100 (3.7)
Hafnium-172	72	1 (.037)
Hafnium-173	72	100 (3.7)
Hafnium-175	72	100 (3.7)
Hafnium-177m	72	1000 (37)
Hafnium-178m	72	0.1 (.0037)
Hafnium-179m	72	100 (3.7)
Hafnium-180m	72	100 (3.7)
Hafnium-181	72	10 (.37)
Hafnium-182	72 72	0.1 (.0037)
Hafnium-182m	72	100 (3.7)
Hafnium-183	72	100 (3.7)
Hafnium-184	72 72	100 (3.7)
Holmium-155	67	100 (3.7)
Holmium-157	67	` '
		1000 (37)
Holmium-159	67	1000 (37)
Holmium-161	67	1000 (37)
Holmium-162	67	1000 (37)
Holmium-162m	67	1000 (37)
Holmium-164	67	1000 (37)
Holmium-164m	67	1000 (37)
Holmium-166	67	100 (3.7)
Holmium-166m	67	1 (.037)
Holmium-167	67	100 (3.7)
Hydrogen-3	1	100 (3.7)
Indium-109	49	100 (3.7)
Indium-110 (4.9 hr)	49	10 (.37)
Indium-110 (69.1 min)	49	100 (3.7)
Indium-111	49	100 (3.7)
Indium-112	49	1000 (37)
Indium-113m	49	1000 (37)
Indium-114m	49	10 (.37)
Indium-115	49	0.1 (.0037)
Indium-115m	49	100 (3.7)
Indium-116m	49	100 (3.7)
Indium-117	49	1000 (37)
Indium-117m	49	100 (3.7)
Indium-119m	49	1000 (37)
Iodine-120	53	10 (.37)
Iodine-120m	53	100 (3.7)
Iodine-121	53	100 (3.7)
Iodine-123	53	10 (.37)
Iodine-124 Iodine-125	53	0.1 (.0037)
	53	0.01 (.00037)
Iodine-126	53	0.01 (.00037)
Iodine-1285	53	1000 (37)
100Ine-129	53	0.001 (.000037)
Iodine-130@	53	1 (.037)
Iodine-131	53	0.01 (.00037)
	53	10 (.37)
Iodine-132m	53	10 (.37)
337 11 4 77 1 1 0 1 1 0 2		

Contingency Plan: In the event of a hazardous chemical or biological release

1		
Iodine-133	53	0.1 (.0037)
Iodine-134	53	100 (3.7)
Iodine-135	53	10 (.37)
Iridium-182	77	1000 (37)
Iridium-184	77	100 (3.7)
Iridium-185	77	100 (3.7)
Iridium-186	77	10 (.37)
Iridium-187	77	100 (3.7)
Iridium-188	77	10 (.37)
Iridium-189	77	100 (3.7)
Iridium-190	77	10 (.37)
Iridium-190m	77	1000 (37)
Iridium-192	77	10 (.37)
Iridium-192m	77	100 (3.7)
Iridium-194	77	100 (3.7)
Iridium-194m	77	10 (.37)
Iridium-195	77	1000 (37)
Iridium-195m	77	100 (3.7)
Iron-52	26	100 (3.7)
Iron-55	26	100 (3.7)
Iron-59	26	10 (.37)
Iron-60	26	0.1 (.0037)
Krypton-74	36	10 (.37)
Krypton-76	36	10 (.37)
Krypton-77	36	10 (.37)
Krypton-79	36	100 (3.7)
Krypton-81	36	1000 (3.7)
Krypton-83m	36	1000 (37)
Krypton-85	36	1000 (37)
Krypton-85m	36	100 (3.7)
Krypton-87	36	10 (.37)
Krypton-88	36	10 (.37)
Lanthanum-131	57	1000 (37)
Lanthanum-132	57	100 (3.7)
Lanthanum-135	57	1000 (37)
Lanthanum-137	57	10 (.37)
Lanthanum-138	57	1 (.037)
Lanthanum-140	57	10 (.37)
Lanthanum-141	57	1000 (37)
Lanthanum-142	57	100 (3.7)
Lanthanum-143	57	1000 (37)
Lead-195m	82	1000 (37)
Lead-198	82	100 (3.7)
Lead-199	82	100 (3.7)
Lead-200	82	100 (3.7)
Lead-201	82	100 (3.7)
Lead-202	82	1 (.037)
Lead-202m	82	10 (.37)
Lead-203	82	100 (3.7)
Lead-205	82	100 (3.7)
Lead-209	82	1000 (37)
Lead-210	82	0.01 (.00037)
Lead-211	82	100 (3.7)
Lead-212	82	10 (.37)
Lead-214	82	100 (3.7)
Lutetium-169	71	10 (.37)
Lutetium-170	71	10 (.37)
Lutetium-171	71	10 (.37)
Lutetium-172	71	10 (.37)
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Lutetium-173	71	100 (3.7)
Lutetium-174	71	10 (.37)
Lutetium-174m	71	10 (.37)
Lutetium-176	71	1 (.037)
Lutetium-176m	71	1000 (37)
Lutetium-177	71	100 (3.7)
Lutetium-177m	71	10 (.37)
Lutetium-178	71	1000 (37)
	71	1000 (37)
Lutetium-178m	71	
Lutetium-179		1000 (37)
Magnesium-28	12	10 (.37)
Manganese-51	25	1000 (37)
Manganese-52	25	10 (.37)
Manganese-52m	25	1000 (37)
Manganese-53	25	1000 (37)
Manganese-54	25	10 (.37)
Manganese-56	25	100 (3.7)
Mendelevium-257	101	100 (3.7)
Mendelevium-258	101	1 (.037)
Mercury-193	80	100 (3.7)
Mercury-193m	80	10 (.37)
Mercury-194	80	0.1 (.0037)
Mercury-195	80	100 (3.7)
Mercury-195m	80	100 (3.7)
	80	1000 (37)
Mercury-197	80	1000 (37)
Mercury-197m		
Mercury-199m	80	1000 (37)
Mercury-203	80	10 (.37)
Molybdenum-101	42	1000 (37)
Molybdenum-90	42	100 (3.7)
Molybdenum-93	42	100 (3.7)
Molybdenum-93m	42	10 (.37)
Molybdenum-99	42	100 (3.7)
Neodymium-136	60	1000 (37)
Neodymium-138	60	1000 (37)
Neodymium-139	60	1000 (37)
Neodymium-139m	60	100 (3.7)
Neodymium-141	60	1000 (37)
Neodymium-147	60	10 (.37)
Neodymium-149	60	100 (3.7)
Neodymium-151	60	1000 (37)
Neptunium-232	93	1000 (37)
	93	1000 (37)
Neptunium-233	93	1000 (37)
Neptunium-234		
Neptunium-235	93	1000 (37)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (.0037)
Neptunium-236 (22.5 hr)	93	100 (3.7)
Neptunium-237	.93	0.01 (.00037)
Neptunium-238	93	10 (.37)
Neptunium-239	93	100 (3.7)
Neptunium-240	93	100 (3.7)
Nickel-56	28	10 (.37)
Nickel-57	28	10 (.37)
Nickel-59	28	100 (3.7)
Nickel-63	28	100 (3.7)
Nickel-65	28	100 (3.7)
	28	10 (.37)
Nickel-66	41	100 (3.7)
Niobium-89 (122 min)	41	100 (3.7)
- 1100 miles (122 miles)		(/)

Niobium-89 (66 min)	. 41	100 (3.7)
Niobium-90	41	10 (.37)
Niobium-93m	41	100 (3.7)
Niobium-94	41	10 (3.7)
Niobium-95	41	10 (.37)
Niobium-95m	41	
Niobium-96	41	100 (3.7)
Niobium-97	41	10 (.37)
Niobium-98		100 (3.7)
Osmium-180	41	1000 (37)
Osmium-181	76	1000 (37)
Osmium-182	76	100 (3.7)
Osmium-185	76	100 (3.7)
Osmium-189m	76	10 (.37)
Osmium 101	76	1000 (37)
Osmium-191	76	100 (3.7)
Osmium-191m	76	1000 (37)
Osmium-193	76	100 (3.7)
Osmium-194	76	1 (.037)
Palladium-100	46	100 (3.7)
Palladium-101	46	100 (3.7)
Palladium-103	46	100 (3.7)
Palladium-107	46	100 (3.7)
Palladium-109	46	1000 (37)
Phosphorus-32	15	0.1 (.0037)
Phosphorus-33	15	1 (.037)
Platinum-186	78	100 (3.7)
Platinum-188	78	100 (3.7)
Platinum-189	78	100 (3.7)
Platinum-191	78	100 (3.7)
Platinum-193	78	(1000 (37)
Platinum-193m	78	100 (3.7)
Platinum-195m	78	100 (3.7)
Platinum-197	78	1000 (37)
Platinum-197m	78	1000 (37)
Platinum-199	78	1000 (37)
Platinum-200	78	100 (3.7)
Plutonium-234	94	100 (3.7)
Plutonium-235	94	1000 (37)
Plutonium-236	94	0.1 (.0037)
Plutonium-237	94	
Plutonium-238	94	1000 (37)
Plutonium-239	9 4 94	0.01 (.00037)
Plutonium-240	94 94	0.01 (.00037)
Plutonium-241	94 94	0.01 (.00037)
Plutonium-242		1 (.037)
Plutonium-243	94	0.01 (.00037)
Plutonium-244	94	1000 (37)
Plutonium-245	94	0.01 (.00037)
Polonium 202	94	100 (3.7)
Polonium-203	84	100 (3.7)
Polonium-205	84	100 (3.7)
Polonium-207	84	10 (.37)
Polonium-210	84	0.01 (.00037)
Potassium-40	19	1 (.037)
Potassium-42	19	100 (3.7)
Potassium-43	19	10 (.37)
Potassium-44	19	100 (3.7)
Potassium-45	19	1000 (37)
Praseodymium-136	59	1000 (37)
Praseodymium-137	59	1000 (37)
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Praseodymium-138m	59	100 (3.7)
Praseodymium-139	59	1000 (37)
-142	59	100 (3.7)
Praseodymium-142m	59	1000 (37)
Praseodymium-143	59	10 (.37)
Praseodymium-144	59	1000 (37)
Praseodymium-145	59	1000 (37)
Praseodymium-147	59	1000 (37)
Promethium-141	61	1000 (37)
Promethium-143	61	` '
Promethium-144	61	100 (3.7)
Promethium-145		10 (.37)
	61	100 (3.7)
Promethium-146	61	10 (.37)
Promethium-147	61	10 (.37)
Promethium-148	61	10 (.37)
Promethium-148m	61	10 (.37)
Promethium-149	61	100 (3.7)
Promethium-150	61	100 (3.7)
Promethium-151	61	100 (3.7)
Protactinium-227	91	100 (3.7)
Protactinium-228	91	10 (.37)
Protactinium-230	91	10 (.37)
Protactinium-231	91	0.01 (.00037)
Protactinium-232	91	10 (.37)
Protactinium-233	91	100 (3.7)
Protactinium-234	91	10 (.37)
RADIONUCLIDES \$ <dagger></dagger>		1 (.037)
Radium-223	88	1 (.037)
Radium-224	88	10 (.37)
Radium-225	88	1 (.037)
Radium-226 **	88	0.1 (.0037)
Radium-227	88	
Radium-227	88	1000 (37)
		0.1 (.0037)
Radon-220	86	0.1 (.0037)
Radon-222	86	0.1 (.0037)
Rhenium-177	75 75	1000 (37)
Rhenium-178	75	1000 (37)
Rhenium-181	75	100 (3.7)
Rhenium-182 (12.7 hr)	75	10 (.37)
Rhenium-182 (64.0 hr)	75	10 (.37)
Rhenium-184	75	10 (.37)
Rhenium-184m	75	10 (.37)
Rhenium-186	75	100 (3.7)
Rhenium-186m	75	10 (.37)
Rhenium-187	75	1000 (37)
Rhenium-188	75	1000 (37)
Rhenium-188m	75	1000 (37)
Rhenium-189	75	1000 (37)
Rhodium-100	45	10 (.37)
Rhodium-101	45	10 (.37)
Rhodium-101m	45	100 (3.7)
Rhodium-102	45	10 (.37)
Rhodium-102m	45	10 (.37)
Rhodium-102m Rhodium-103m A. J. C.	45	1000 (37)
Rhodium-105	45	100 (3.7)
	45	100 (3.7)
Rhodium-106m Rhodium-107	45	10(.37)
	45	1000 (37)
Rhodium-99 m WICI	45	10 (.37)
Washington University School of N	73	100 (3.7)
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Rubidium-79	37	1000 (37)
Rubidium-81	37	100 (3.7)
Rubidium-81m	37	1000 (37)
Rubidium-82m	37	10 (.37)
Rubidium-83	37	10 (.37)
Rubidium-84	37	10 (.37)
Rubidium-86	37	10 (.37)
Rubidium-87	37	10 (.37)
Rubidium-88	37	1000 (37)
Rubidium-89	37	1000 (37)
Ruthenium-103	44	10 (.37)
Ruthenium-105	44	100 (3.7)
Ruthenium-106	44	1 (.037)
Ruthenium-94	44	1000 (37)
Ruthenium-97	44	100 (3.7)
Samarium-141	62	1000 (37)
Samarium-141m	62	1000 (37)
Samarium-142	62	1000 (37)
Samarium-145	62	100 (3.7)
Samarium-146	62	0.01 (.00037)
Samarium-147	62	0.01 (.00037)
Samarium-151	62	10 (.37)
Samarium-153	62	100 (3.7)
Samarium-155	62	1000 (37)
Samarium-156	62	100 (3.7)
Scandium-43	21	1000 (37)
Scandium-44	21	100 (3.7)
Scandium-44m	21	10 (.37)
Scandium-46	21	10 (.37)
Scandium-47	21	100 (3.7)
Scandium-48	21	10 (.37)
Scandium-49	21	1000 (37)
Selenium-70	34	1000 (37)
Selenium-73	34	10 (.37)
Selenium-73m	34	100 (3.7)
Selenium-75	34	10 (.37)
Selenium-79	34	10 (.37)
Selenium-81	34	1000 (37)
Selenium-81m	34	1000 (37)
Selenium-83	34	1000 (37)
Silicon-31	14	1000 (37)
Silicon-32	14	1 (.037)
Silver-102	47	100 (3.7)
Silver-103	47	1000 (37)
Silver-104	47	1000 (37)
Silver-104m	47	1000 (37)
Silver-105	47	10 (.37)
Silver-106	47	1000 (37)
Silver-106m	47	10 (.37)
Silver-108m	47	10 (.37)
Silver-110m	47	10 (.37)
Silver-111	47	10 (.37)
Silver-112	47	100 (3.7)
Silver-115	47	1000 (37)
Sodium-22	11	10 (.37)
Sodium-24	11	10 (.37)
Strontium-80	38	100 (3.7)
Strontium-81	38	1000 (37)
Strontium-83	38	100 (3.7)

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0	20	10 (27)
Strontium-85	38	10 (.37)
Strontium-85m	38	1000 (37)
Strontium-87m	38	100 (3.7)
Strontium-89	38	10 (.37)
Strontium-90	38	0.1 (.0037)
Strontium-91	38	10 (.37)
Strontium-92	38	100 (3.7)
Sulfur-35	16	1 (.037)
Tantalum-172	73	100 (3.7)
Tantalum-173	73	100 (3.7)
Tantalum-174	73	100 (3.7)
Tantalum-175	73	100 (3.7)
Tantalum-176	73	
		10 (.37)
Tantalum-177	73	1000 (37)
Tantalum-178	73	1000 (37)
Tantalum-179	73	1000 (37)
Tantalum-180	73	100 (3.7)
Tantalum-180m	73	1000 (37)
Tantalum-180	73	10 (.37)
Tantalum-182m	73	1000 (37)
Tantalum-183	73	100 (3.7)
Tantalum-184	73	10 (.37)
Tantalum-185	73	1000 (37)
Tantalum-186	73	1000 (37)
	43	1000 (37)
Technetium-101		
Technetium-104	43	1000 (37)
Technetium-93	43	100 (3.7)
Technetium-93m	43	1000 (37)
Technetium-94	43	10 (.37)
Technetium-94m	43	100 (3.7)
Technetium-96	43	10 (.37)
Technetium-96m	43	1000 (37)
	43	
Technetium-97		100 (3.7)
Technetium-97m	43	100 (3.7)
Technetium-98	43	10 (.37)
Technetium-99	43	10 (.37)
Technetium-99m	43	100 (3.7)
Tellurium-116	52	1000 (37)
Tellurium-121	52	10 (.37)
	52	
Tellurium-121m		10 (.37)
Tellurium-123	52	10 (.37)
Tellurium-123m	52	10 (.37)
Tellurium-125m	52	10 (.37)
Tellurium-127	52	1000 (37)
Tellurium-127m	52	10 (.37)
Tellurium-129	52	1000 (37)
Tellurium-129m	52	10 (.37)
Tellurium-131	52	1000 (37)
Tellurium-131m	52	10 (.37)
Tellurium-132	52	10 (.37)
Tellurium-133	52	1000 (37)
Tellurium-133m	52	1000 (37)
Tellurium-134	52	1000 (37)
Terbium-147	65	100 (3.7)
	65	
Terbium-149		100 (3.7)
	65	100 (3.7)
Terbium-151	65	10 (.37)
Terbium-153	65	100 (3.7)
Terbium-154	65	10 (.37)
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Terbium-155	65	100 (3.7)
Terbium-156	65	10 (.37)
Terbium-156m (24.4 hr)	65	1000 (37)
Terbium-156m (5.0 hr)	65	1000 (37)
Terbium-157	65	100 (3.7)
Terbium-158	65	10 (.37)
Terbium-160	65	10 (.37)
Terbium-161	65	100 (3.7)
Thallium-194	81	1000 (37)
Thallium-194m	81	100 (3.7)
Thallium-195	81	100 (3.7)
Thallium-197	81	100 (3.7)
Thallium-198	81	10 (.37)
Thallium-198m	81	100 (3.7)
Thallium-199	81	100 (3.7)
Thallium-200	81	10 (.37)
Thallium-201	81	1000 (37)
Thallium-202	81	10 (.37)
Thallium-204	81	10 (.37)
Thorium (Irradiated)	90	***
Thorium (Natural)	90	**
Thorium-226	90	100 (3.7)
Thorium-227	90	1 (.037)
Thorium-228	90	0.01 (.00037)
Thorium-229	90	0.001 (.000037)
Thorium-230	90	0.01 (.00037)
Thorium-231	90	100 (3.7)
Thorium-232 **	90	0.001 (.000037)
Thorium-234	90	100 (3.7)
Thulium-162	69	1000 (37)
Thulium-166	69	10 (.37)
Thulium-167	69	100 (3.7)
Thulium-170	69	10 (.37)
Thulium-171	69	100 (3.7)
Thulium-172	69	100 (3.7)
Thulium-173	69	100 (3.7)
Thulium-175	69	1000 (37)
Tin-110	50	100 (3.7)
Tin-111	50	1000 (37)
Tin-113	50	10 (.37)
Tin-117m	50	100 (3.7)
Tin-119m	50	10 (.37)
Tin-121	50	1000 (37)
Tin-121m	50	10 (.37)
Tin-123	50	10 (.37)
Tin-123m	50	1000 (37)
Tin-125	50	10 (.37)
Tin-126	50	1 (.037)
Tin-127	50	100 (3.7)
Tin-128	50	1000 (37)
Titanium-44	22	1 (.037)
Titanium-45	22	1000 (37)
Tungsten-176	74	1000 (37)
Tungsten-177	74	100 (3.7)
Tungsten-178	74	100 (3.7)
Tungsten-179	74	1000 (37)
Tungsten-181	74	100 (3.7)
Tungsten-185	74	10 (.37)
Tungsten-187	74	100 (3.7)
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Tungsten-188	74	10 (.37)
Uranium (Depleted)	92	***
Uranium (Irradiated)	92	***
Uranium (Natural)	92	**
Uranium Enriched 20% or greater.		***
Uranium Enriched less than 20%.	92	***
Uranium-230	92	1 (.037)
Uranium-231	92	1000 (37)
Uranium-232	92	0.01 (.00037)
Uranium-233	92	0.1 (.0037)
Uranium-234 **	92	0.1 (.0037)
Uranium-235 **	92	0.1 (.0037)
Uranium-236	92	0.1 (.0037)
Uranium-237	92	100 (3.7)
Uranium-238 **	92	0.1 (.0037)
Uranium-239	92	1000 (37)
Uranium-240	92	1000 (37)
Vanadium-47	23 23	1000 (37)
Vanadium-48	23	10 (.37)
Vanadium-49	23 54	1000 (37) 100 (3.7)
Xenon-120 Xenon-121	54 54	100 (3.7)
Xenon-121	54 54	10 (.37)
Xenon-123	54 54	100 (3.7)
Xenon-125	54	100 (3.7)
Xenon-127	54	100 (3.7)
Xenon-129m	54	100 (3.7)
Xenon-131m	54	1000 (37)
Xenon-131	54	1000 (37)
Xenon-133m	54	1000 (37)
Xenon-135	54	100 (3.7)
Xenon-135m	54	10 (.37)
Xenon-138	54	10 (.37)
Ytterbium-162	70	1000 (37)
Ytterbium-166	70	10 (.37)
Ytterbium-167	70	1000 (37)
Ytterbium-169	70	10 (.37)
Ytterbium-175	70	100 (3.7)
Ytterbium-177	70	1000 (37)
Ytterbium-178	70	1000 (37)
Yttrium-86	39	10 (.37)
Yttrium-86m	39	1000 (37)
Yttrium-87	39	10 (.37)
Yttrium-88	39	10 (.37)
Yttrium-90	39	10 (.37)
Yttrium-90m	39	100 (3.7)
Yttrium-91	39	10 (.37)
Yttrium-91m	39	1000 (37)
Yttrium-92	39	100 (3.7)
Yttrium-93	39	100 (3.7)
Yttrium-94	39 30	1000 (37)
Yttrium-95	39 30	1000 (37)
Zinc-62	30	100 (3.7)
Zinc-63 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	30 30	1000 (37)
ZINC-03	30	10 (.37) 1000 (37)
Zinc-69	30	1000 (37)
	30	100 (3.7)
Zinc-71mZinc-72 MOIZIVIQ	30	100 (3.7)
* STEEL OF DESIGNATION OF BUILD	50	100 (3.1)

Zirconium-86	40	100 (3.7)
Zirconium-88	40	10 (.37)
Zirconium-89	40	100 (3.7)
Zirconium-93	40	1 (.037)
Zirconium-95	40	10 (.37)
Zirconium-97	40	10 (.37)

The RQs for all radionuclides apply to chemical compounds containing the radionuclides and elemental forms regardless of the diameter of pieces of solid material.

The RQ of one curie applies to all radionuclides not otherwise listed. Whenever the RQs in TABLE 1--HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES and this table conflict, the lowest RQ shall apply. For example, uranyl acetate and uranyl nitrate have RQs shown in TABLE 1 of 100 pounds, equivalent to about one-tenth the RQ level for uranium- 238 in this table.

- ** The method to determine the RQs for mixtures or solutions of radionuclides can be found in paragraph 7 of the note preceding TABLE 1 of this appendix. RQs for the following four common radionuclide mixtures are provided: radium-226 in secular equilibrium with its daughters (0.053 curie); natural uranium (0.1 curie); natural uranium in secular equilibrium with its daughters (0.052 curie); and natural thorium in secular equilibrium with its daughters (0.011 curie).
- *** Indicates that the name was added by RSPA because it appears in the list of radionuclides in 49 CFR 173.435. The reportable quantity (RQ), if not specifically listed elsewhere in this appendix, shall be determined in accordance with the procedures in paragraph 7 of this appendix.

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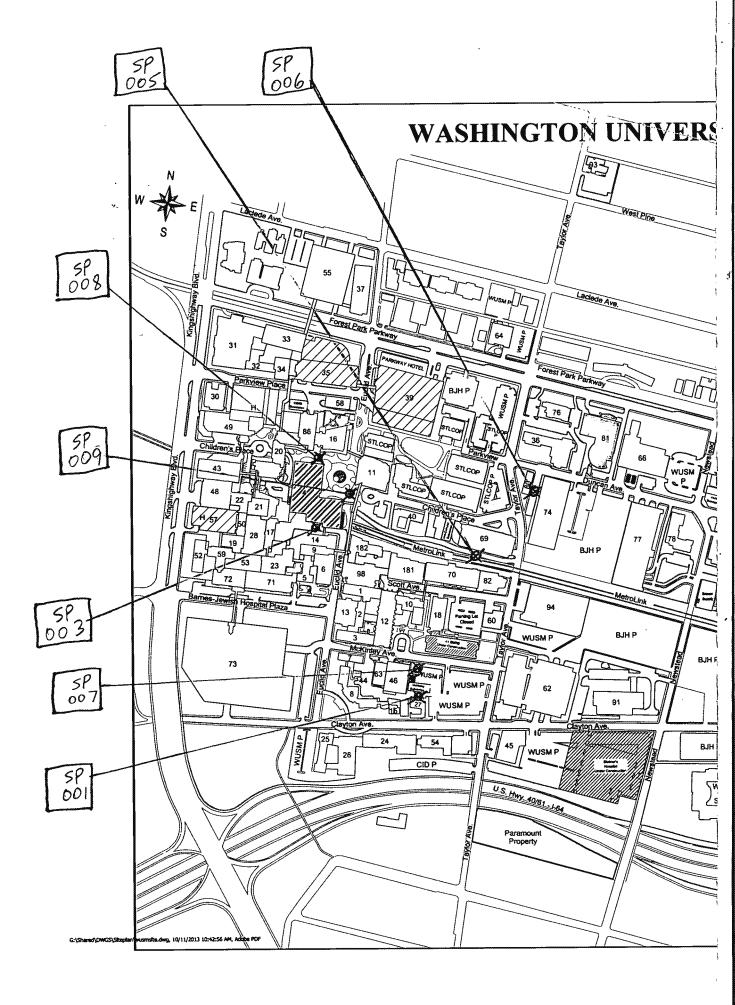
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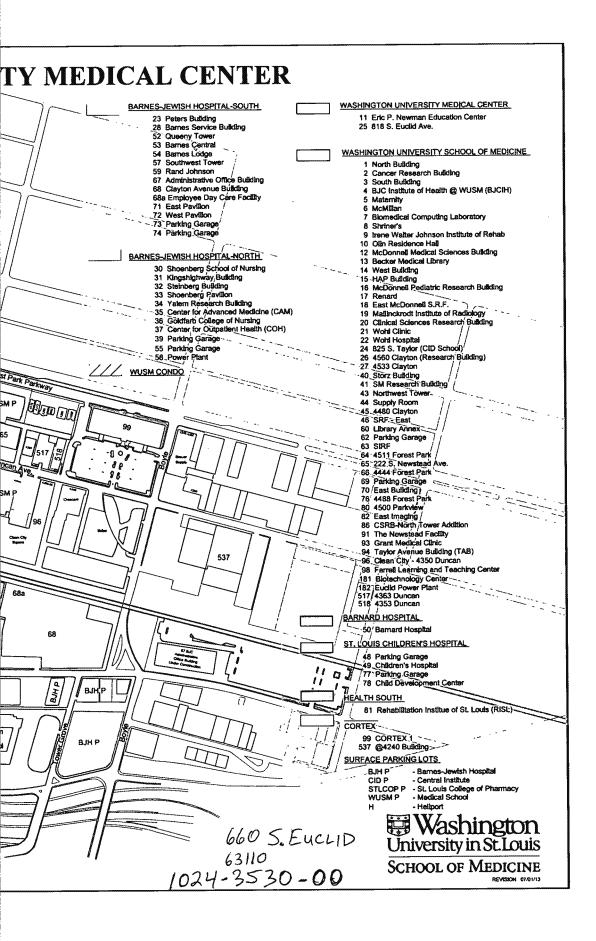
DIVISION OF ENVIRONMENTAL COMPLIANCE

Attachment I

Washington University Medical Center Map

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METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2014

(Jan-Mar) √ (Apr-Jui

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories

PART II:

St. Louis Testing Laboratories
ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	······································		006	T	007	T	008	T	009	T.
		G: C:	See attached See attached	G: IC:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	
Times at Which Samples Were Collect	ted	G: C:		G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	
PARAMETER	LIMIT	Record Sample Types (G.C,M, or E) And Results Below G=grab, C-composite, M=measured flow, E=estimated flow				George Green Anna George George George George (1902)	Units			
Flow	*** 1:	E	950	E	23,500	Ī	131,850	T	131,850	Gal/Day
Biological Oxygen Demand	***	C	See attached	С	See attached	T	See attached	T	See attached	mg/L
Chemical Oxygen Demand	****	С	See attached	С	See attached		See attached	T	1	mg/L
Total Suspended Solids	***	С	See attached	С	See attached	<u> </u>	See attached		See attached	mg/L
pH	5.5 - 11.5	G	See attached	G	See attached		See attached	Ī	See attached	pН
Oil & Grease	200	G	See attached	G	See attached		See attached		See attached	mg/L
Temperature	60	G	See attached	G	See attached		See attached		See attached	Celcius
Silver	0.5	С	See attached	С	See attached		See attached		See attached	mg/L
Total Phenol	7	G	See attached	G	See attached	G:	See attached	G:	See attached	mg/L
		•			,			·	·	·
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- ,										•
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You must complete and sign the certification statements on the reverse side.

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METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Effective:

Expiration:

12/31/2017

Premise Address: Monitoring Period:

660 South Euclid Ave., St. Louis, MO, 63110 2014

(Jan-Mar) V (Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

e attachec e attachec e attachec e attachec e attachec e attachec ilts Below imated flow 340,000	Units
e attachec e attachec e attachec ults Below imated flow	Uniţs
e attachec e attachec ults Below imated flow	Units
mated flow	Units
340,000	
	Gal/Day
e attached	mg/L
· · ·	mg/L
	mg/L
e attached	рН
	mg/L
attached	Celcius
	mg/L
	mg/L
	<u>g</u>
	,

	e attached

You must complete and sign the certification statements on the reverse side.



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

April 29, 2014 Lab No. 14E-0685 Invoice No. 182046 P.O. No 4899 Page 1 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 04/22/14, 8:36 A.M. WASTEWATER COMPOSITE, SP001, 04/22/14, 8:36 A.M. – 3:21 P.M. WASTEWATER GRAB, SP003, 04/22/14, 8:45 A.M.

WASTEWATER COMPOSITE, SP003, 04/22/14, 8:45 A.M. – 3:23 P.M. WASTEWATER GRAB, SP005, 04/22/14, 8:22 A.M. WASTEWATER COMPOSITE, SP005, 04/22/14, 8:22 A.M. – 3:15 P.M. WASTEWATER COMPOSITE, SP005, 04/22/14, 8:22 A.M. – 3:15 P.M.

WASTEWATER GRAB, SP006, 04/22/14, 8:12 A.M.

WASTEWATER COMPOSITE, SP006, 04/22/14, 8:12 A.M. - 3:41 P.M.

Units: mg/L except as noted

ANALYTE	SP001	SP003	SP005	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	20	255	55	ND ·	5	5210 B	4/28/14
Chemical Oxygen Demand (C)	57	362	130	ND	10	5220 D	4/23/14
Total Suspended Solids (C)	.99	275	185	6	5	160.2	4/24/14
pH (Std. pH Units) (G)	7.83	8.76	8.26	8.93		150.1 °	4/22/14
Temperature, °C (G)	20.4	19.8	20.6	15.7		170.1	4/22/14
Oil & Grease (G)	ND	· 7	ND	9	5	1664	4/24/14
Silver (C)	ND	ND	ND	ND	0.05	200.7	4/23/14
Total Phenol (G)	ND	ND	0.094	ND	0.005	420.4	4/23/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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SEE REVERSE FOR CONDITIONS.

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Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 April 29, 2014 Lab No. 14E-0685 Invoice No. 182046 P.O. No 4899 Page 2 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 04/22/14, 8:29 A.M. WASTEWATER COMPOSITE, SP007, 04/22/14, 8:29 A.M. – 3:18 P.M.

WASTEWATER GRAB, SP008, 04/22/14, 8:58 A.M. WASTEWATER COMPOSITE, SP008, 04/22/14, 8:58 A.M. WASTEWATER GRAB, SP009, 04/22/14, 9:06 A.M. WASTEWATER COMPOSITE, SP009, 04/22/14, 9:06 A.M. WASTEWATER COMPOSITE, SP009, 04/22/14, 9:06 A.M. – 3:23 P.M.

Units: mg/L except as noted

Giller mg/E except de neted						
ANALYTE	SP007	SP008	SP009	MQL.	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	21	162	125	5	5210 B	4/28/14
Chemical Oxygen Demand (C)	80	352	238	10	5220 D	4/23/14
Total Suspended Solids (C)	118	286	172	5	160.2	4/24/14
pH (Std. pH Units) (G)	7.56	8.26	8.26	W & & & .	150.1	4/22/14
Temperature, °C (G)	20.6	20.0	24.3	, 10 44 40 30	170.1	4/22/14
Oil & Grease (G)	5	10	7	5	1664	4/24/14
Silver (C)	ND	ND	0.05	0.05	200.7	4/23/14
'Total Phenol (G)	ND	0:012	0.010	0.005	420.4	4/23/14

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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EVENOR OF ENVIRONMENTAL COMPLIANCE Steve Root, Manager **Environmental Testing**

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SEE REVERSE FOR CONDITIONS.

INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

Γ	B.	DISCHARGE MONITORING REPORT CERTIFICATION
		All permittees must sign and complete the information below:
		I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
		Print or type name of signing official. Livi Isringhausen
		Title: Environmental Compliance Manager Telephone: 314-362-6735
		Signature

.2

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METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I: IDENTIFYING INFORMATION	
Company Name: Washington University Medical School	
Permit No: 1024-3530-00	
Premise Address: 660 South Euclid, St. Louis, MO 63110	
Reporting Period: 2014 X (JAN-MAR) [(APR-JUN) [(JUL-SEP) [(OCT-DEC
PART II: RECORD OF DISPOSAL OF RADIO	ACTIVE MATERIALS TO THE SEWER
RADIONUCLIDE	ACTIVITY DISCHARGED (millicuries)
C-14	0.0235
H-3	15.4311
I-125	0.0827
I-131	0.0140
P-32	0.1061
S-35	0.1354
TOTAL ACTIVITY DISCHARGED:	15.7927
PART III: CERTIFICATION STATEMENTS	
Place your initials in the box under Item A. Everyone must complete the information under Items A	A & B and sign this report.
A. CERTIFICATION OF COMPLIANCE WITH S	STATE AND FEDERAL REGULATIONS
	all requirements of 10 CFR Part 20.2003 and 19 CSR Part 20-10.090 for material regulated by the Nuclear Regulatory Commission and the been met for the period covered by this report.
B. RADIOACTIVE MATERIALS DISCHARGE	REPORT CERTIFICATION
system designed to assure that qualified personnel properly gathe person or persons who manage the system, or those person	ments were prepared under my direct supervision in accordance with a ather and evaluate the information submitted. Based on my inquiry of as directly responsible for gathering the information, the information urate, and complete. I am aware that there are significant penalties for and imprisonment for knowing violations.
Time Type name of Signing Official. Ratia Spatiord	
Title: Radiation Safety Specialist	Telephone: (314) 362-4968
Signature: Mas Do No Aff	Date: 04/17/2014

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RE: radrpt.doc 2/00

APR 2 1 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL FACILITY <u>INSPECTION</u> REPORT

Company Representative: Livi Isringhausen Title: Environmental Compliance Manager Inspector: Mike Kynion			Zip	,	Vater/Wastes indling/Billing
NOTE: ALL ITEMS ARE TO BE COMPLETED BASED ON EVE		AST INSPECTION			27/13) ION OBTAINED OR
PROVIDED BY COMPANY DURING INSPECTION, AS *** DATABASE ALSO UPDATED WIT				database reports **	*
A. ARE THERE ADDITIONAL NON-STORMY List them, note any changes: 10243 B. Did all acct no's have water usage on P. C. If no to B, explain:	52900, 1024			700, 1048106300, 10	Yes⊠ No 024353900 Yes⊠ No
2. PROCESSES & CLEANUP/WASHDOWN:		Cont/ Batch?	Water/Liquids Used?	Frequency of DISCHARGE	Sample pt.
Research and testing laboratories		Cont	Yes	Daily	001,003,005, 007,008,009
Research mice and other animals (housing and washing)	care/cage	Cont	Yes	Daily	003,005,007, 008,009
Kitchen services		Batch	Yes	Daily	005
Hazardous material cleanup (lab pack, bulking, shipments)	prep for	Batch	Yes	Daily	006
		(None) (None)	N/A N/A		
<u> </u>	.	(NONC)	[
3. PRETREATMENT (other than grease traps) - descri	be:				Sample pt.
pH neutralization					001,003,005, 006,007,008, 009
Silver recovery					001,003,005, 008,009
4. DOES COMPANY HAVE ANY GREASE TRAPS? If yes: A. List sample points: 005 B. What is the frequency for cleaning & m C. Are any additives used in traps? D. If yes to C, was company warned MSD will to the company informed that MSD performs.	oill them for b	lockages they	cause?		Yes No No Yes No Yes No Yes No Yes No Yes No
5. HAS COMPANY CONSTRUCTED NEW BLDGS/A If yes: A. Ask company: Did they notify MSD's Pla B. If no or unknown, has inspector notified C. Comments:	an Review gr	oup?	RS SINCE LAST INSP	ECTION? Unknowr	Yes No No No Yes No No Yes No

Inspection report

6. If yes:		COMPANY BEGUN DISCHARGING ANY NEW POLLUTANTS List pollutants & process:	SINCE THE LAST INSPECTION?		Yes□ No⊠
,		Will MSD STP exceed existing NPDES discharge limit(s)?			Yes No
	C.	Will MSD STP's discharge exceed 0.1 mg/l for any new po			Yes No
		(MSD must notify MDNR if B or C is yes and discharge wi	ll continue [40CFR122.42(b)].)		
	D.	Comments:			
7	ADE	THERE ANY FEDERALLY RECULATED (40 CFR 405 471) OR	-DATIONES		V \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
7. If yes:		THERE ANY FEDERALLY REGULATED (40 CFR 405-471) OPE List regulation & describe (including any discharge):	<u>RATIONS</u> ?		Yes∏ No⊠
ii yes.	Α.	List regulation & describe (including any discharge).			
	В.	Is maximum daily categorical discharge ≤ 100 GPD? (inclu	udes batch discharges)		Yes No
If yes to	э В:	C. Batch or Continuous? Volume verified ho	- ·		
		D. Does company ever discharge untreated, concentre	ated categorical wastewater?		Yes No
		E. Was company in SNC during any part of the previous	us 24 months?		Yes No
		F. Date of last NSCIU Certification Statement: c			
		(If no to B, yes to D or E, or Cert Statement not sub	mitted as required, company is	not eligible to be a	an NSCIU)
	LIAC	COMMENSATIVE CERTIFIED TO THE ARCENICE OF CRECIFIC CATE	CODICAL DOLLUTANTCO		
8.		COMPANY CERTIFIED TO THE ABSENCE OF SPECIFIC CATE	SORICAL POLLUTANTS?	`	Yes□ No⊠
If yes:		Certification date: List absent pollutants:	•	•	
		Were all these pollutants non-detect in all monitoring sir	nce certification was approved?	,	Yes No
	С.	(If compared to intake water levels, explain details below	• •		162 140
	If n	no to C: D. Explain:	•,		
	Ε.	Comments:			
9.		S CATEGORICAL WASTEWATER COMBINE WITH NON-CATI	EGORICAL WW PRIOR TO SAMP	LING?	res□ No⊠
If yes:		At which points?			
		Current applied factor:	Procument	Is it correct?	res No
	C.	If no, list correct factor/explain?			
10.	15 Δ1	NY WASTEWATER SUBJECT TO PRODUCTION [] OR MASS	T RASED STANDARDS2		Yes No
If yes:		At which points?	DAGED STANDANDS:		res NOM
,		Since calculation of the current limits, has the long term	avg production rate or dischare	re volume	Yes No
		changed by 20% or more?		,c vorume	.63[] .10[]
	C.	If yes to B, explain:		•	
11.		ANY RADIOACTIVE MATERIALS HANDLED?			′es⊠ No□
If yes:	A.		for lab research is collected		
			can for disposal. Some liquid ra	<u>d waste is decayed</u>	on-site and
	В.	sewered. Solids are na Does company have MSD authorization for disposal to se	uled off-site for disposal.		
		Most recent authorization date: 7/8/94	werr	NAL Y	′es⊠ No□
		Amount discharged in most recent complete calendar ye	ar: <u>63.6779 mCi</u>	•	
	-	in the second of	<u> </u>		
12.	DOES	S COMPANY GENERATE WASTES/WASTEWATER BY GENET	TC ENGINEERING RESEARCH?	. Y	′es□ No⊠
If yes:	A.	Does company render wastes/wastewater innocuous?			'es No
		If yes, describe how:			
	C.	Does company have MSD authorization for disposal to se	wer?	NA NA	'es No
	υ.	Most recent authorization date:			

13.	DOE2 PROCESS C					Yes∐ No⊠
		ING DILUTION TO			· · · · · · · · · · · · · · · · · · ·	
	A. Explain hov	v use was verified	& any neede	d changes	3:	
	No excessi	ve water usage wa	as observed	at the tim	e of inspection. Process usage is generated from la	ab activities and
			- 1		s attributed to the numerous small labs across the	
					ctivities of the numerous labs equate to a large tot	
					ed by the site contact appears normal for the ty	
		water records are	u momanc	iii pioviue	ed by the site contact appears normal for the ty	ype and size of
	operation.					
14.			INSPECTION	I, DOES CO	OMPANY APPEAR TO HAVE SOME WATER THAT IS	Yes⊠ No□
	NOT DISCHARGE	D TO SEWER?			•	
If yes:	A. Describe:	Evaporative loss	from HVAC	systems.		
•		n Factor Program'			npany?	Yes⊠ No□
		of whether some				1632 110
	(regardiess	Or Whether Some	Water isinot	uiscriarge	a to sewer)	
1 5	UAC CONADANY C	TEN COANTED AV	(4 D) 4 A) CE ED	ON DICCU	LADOS LIBARTATIONIS CONTAINISD IN THE SELVED	
15.			ARIANGE FR	OIM DISCH	IARGE LIMITATIONS CONTAINED IN THE SEWER	Yes∏ No⊠
_	USE ORDINANCE				•	
If yes:		and variance limit	t: <u> </u>			
	B. Latest appr	oval date:				
	C. Is the appro	oved variance mor	e than 5 yea	rs old?		Yes No
	(If yes to C.	a new variance m	ust be reque	sted – wri	te company)	
	, ,	•				
16.	HAVE ANY NUME	RICAL LIMITATION	IS REEN APP	HED TO CO	OMPANY, IN ADDITION TO THOSE ALREADY	Yes□ No⊠
10.		HE SEWER USE OR	1		OWN ANT, IN ADDITION TO THOSE ACKEADY	ies INO
ı£		•	1			
If yes:		and discharge lim				
	B. Date origin	ally applied:	, or as pa	rt of variai	nce above? [_·]	
		•				
17.	HAS COMPANY E	XCEEDED ORDINA	NCE DISCHAI	RGE LIMIT	S SINCE LAST INSPECTION	Yes□ No⊠
	OR WITHIN THE I	AST 12 MONTHS (if last insp <	12 months	sago)?	
If yes:	A.		Sample	Is prob	plem resolved?	
	Pollutant	When	Points	Y/N	Describe	
				N/A		
					<u> </u>	
	· · · · · · · · · · · · · · · · · · ·			N/A		
	.,			N/A		
				N/A		
				N/A		
	B. Comments:		- '			

18.	LIAC COMPANY F	VCCCDCD CATCCO	DICAL DECTO	_ A TA 4 _ N T	LIBATE CINCE THE LACT	a. a. a
10.			3			∑ Yes No
		WITHIN LAST 12 M	i i	-	- ·	
If yes:	A.		Sample	is prob	plem resolved?	*
	Pollutant	When	Points	Y/N	Describe	
				N/A		
				N/A		
	-	· · · · · · · · · · · · · · · · · · ·	 	N/A		· · · · · · · · · · · · · · · · · · ·
		1		1 1V/A		
				N/A		
	B. Comments:			N/A		
	B. Comments:			N/A		
19.		N ANY PROBLEM D	DISCHARGES	N/A N/A	T INSPECTION?	Yes No⊠
19. If yes:	HAVE THERE BEE	N ANY PROBLEM D		N/A N/A SINCE LAS		Yes□ No⊠
	HAVE THERE BEE A. Upsets?	 N ANY PROBLEM D Bypass	es of pretrea	N/A N/A SINCE LAS	cilities?	Yes□ No⊠
	HAVE THERE BEE A. Upsets? Spills?	———— N ANY PROBLEM D Bypass Slug di		N/A N/A SINCE LAS		Yes□ No⊠
	HAVE THERE BEE A. Upsets?	———— N ANY PROBLEM D Bypass Slug di	es of pretrea	N/A N/A SINCE LAS	cilities?	Yes□ No⊠
	HAVE THERE BEE A. Upsets? Spills?	———— N ANY PROBLEM D Bypass Slug di	es of pretrea	N/A N/A SINCE LAS	cilities?	Yes□ No⊠
	HAVE THERE BEE A. Upsets? Spills?	———— N ANY PROBLEM D Bypass Slug di	es of pretrea	N/A N/A SINCE LAS	cilities?	Yes□ No⊠
	HAVE THERE BEE A. Upsets? Spills?	———— N ANY PROBLEM D Bypass Slug di	es of pretrea	N/A N/A SINCE LAS	cilities?	Yes□ No⊠

20.		ILD SPILLS OR LEAKS OF AN' MICALS EASILY REACH SANI		•		, OR STORE	D WASTES, OR S	ORED	Yes No No
If yes:		What needs to be done?			,				
If no:	В.	How are they controlled? Hazardous waste is store	d and nra	accod in huilding	. 90 locati	ad at 4500	Dungan Ayanya	Dauma :	n the har weets
		building are stored in a							
		available throughout the				micht pan	ices. Hammadic	caomets e	ma spin kies are
		,				,			
21.		ED ON OBSERVATIONS DUR		· ·	ANY AREA	S WHERE (COMPANY ACTIVI	TIES	Yes□ No⊠
16		EAR TO IMPAIR STORMWAT	ER RUNOFI	F? 					
If yes:	А. В.	Describe: What needs to be done?							
	C.	Was "Illicit Stormwater Di	scharges" b	i rochure given to o	company?				Yes⊠ No□
		(regardless of whether the		1					
								(a) (1) I a	
22. If yes:	DOE:	S COMPANY HAVE ANY <u>WRITTI</u> Title (actual title, NC			INCLUDES S	SPILLS) PLAN	IS [40CFR403.8(f)(Yes⊠ No□
n yes.	Α.	SPCCP (currently be			shed with	undate h	v end of March	Last Upd 10/29/13	
		2014)	mg apaate	d and win se iiii	Siled With	updute by	y cha or water	10/25/1	-
		2.							
	В.		ompletene	ss, especially rega	rding bate	ch discharge	es/slugs and Q.19	/20/21?	Yes⊠ No□
	C.	(must be done) Are updates needed to ex	icting Planc	2 /If võs jurita sar	nnány 9. r	oquiro)			Yes□ No⊠
	D.	Are any Plans needed (in a					mpany & require		Yes No
	Ε.	Explain why/why not for C		an covers emerge					Returned Company
23. If yes:	DOE A.	S COMPANY HAVE ANY MA Parts washer solvent name		SHOP PARTS WA	SHERS?				Yes□ No⊠
ii yes.	В.	Priority pollutants (or "no		<u>:</u>					
,	C.	How is spent solvent dispo	-						
		(These solvents are not include	ded in databa	ase's priority polluta	ints list, no	r monitored	for unless conditio	ns show po	tential discharges)
24.	ADE	ANY ORGANICS OR SOLVEN	ITC LICED IO	THER THAN IN DA	DTC MAC	TEDC/3			/ / /
If yes:	ANE A.		ט משנט ניוו	THEK THẠN IN PA		33/469			Yes No No Priority
,	, .,	components	Used for?		Proce		How disposed	?	Pollutant?
	See	attached solvent list and	Laborator	y reagents	Yes	No⊠	Evaporates an	d	Yes⊠ No□
	PP	list in PIMS					Hauled off-site		
					Yes	No.			Yes No
					Yes_	No No			Yes No Yes No
		·····			Yes	No			Yes No
					Yes	No _			Yes No
							7-4-1	į.	
25.		S COMPANY HAVE A <u>413/43</u>		·			LAN"?		Yes□ No⊠
If yes:		lies if co. has 413/433/469 Is it part of a Spill/Slug Cor			ivents use	a)		Voci1	. 2. 1 No
,, , , , ,		If no to A, date of last upd		7				Lestr	2 NO
		Is there a copy of the Spill,				_			Yes No
	D.	Does SMP address all 413/							Yes No
		(If no to C or D, write com	pany and re	quire submittal ai	nd/or upd	ate)			
26.	ARE	EMERGENCY NOTIFICATION	I PROCEDUI	! RES POSTED THAT	INCLUDE	MSD CONT	ACTS?		Yes⊠ No□
	Α.	Was company provided no	tification ca	rds & told to pos	t where ei	mergency re	esponse personn	el can	Yes⊠ No□
		locate them?	arat						
		(Must post if company gen	erates proc	ess wastewater o	i stores ch	remicals of	concern)		
Inspectio	1 repo	rt ·		EX0277 YEAR					

(9/1/13)

MSD 044283

27.	IS COMPANY <u>REQUIRED</u> TO SELF-MONITOR ANY OF THEIR DISCHARGES?	Yes⊠ No□
If yes:	A. Is requirement contained in permit 🔯 or other document 🔲.	
	B. If other document, date & description:	
	C. How frequently is sampling required? Quarterly	
-	D. How frequently are reports required? Quarterly	
	E. Have reports been on-time, complete & signed by proper person?	Yes⊠ No□
	F. If no, explain:	
		`
28.	DOES COMPANY SELF-MONITOR ITS WASTEWATER DISCHARGE?	Yes⊠ No□
If yes:	A. Does sample collection time period match co's production shifts?	Yes No
	B. Are representative grab/comp samples collected?	Yes No
•	C. Are EPA-approved 40 CFR 136 wastewater test methods used?	Yes No
	D. Does company measure pH and/or temperature itself?	Yes No
	If yes: E. Have the company show equipment and procedure (meters, calibration stds, etc.).	· ·
	Is measurement performed properly?	Yes No
	F. If no to A,B,C, or E,	
	explain needed changes:	
29.	DOES COMPANY CONTINUOUSLY MONITOR AT SAMPLE POINT AND	Yes□ No⊠
	KEEP A PERMANENT RECORD FOR: pH, TEMP, LEL?	***************************************
If yes:	A. At which SPs?	
	B. Does company submit quarterly summaries?	Yes No
	C. If no, explain:	tunand busined
•		٠.
30.	DOES MSD SPLIT SAMPLES WITH THE COMPANY?	Yes No⊠
If yes:	A. Is company having the samples analyzed	Yes No
	B. How does company insure proper preservation, holding times & analytical methods?	
	C. Has company submitted results of all split sample analyses since the last insp?	Yes No
	D. Have results been submitted within 28 days of the collection's calendar quarter?	Yes No
	E. If no to C, or D, explain:	
	F. Does company still want to split samples?	Yes No
	G. Comments:	
		<u></u>
31.	IS COMPANY REQUIRED TO REGULARLY SUBMIT ANY REPORTS OTHER THAN SELF-MONITORING REPORTS?	Yes⊠ No□
If yes:	A. Is requirement contained in permit $igotimes$ or other document $igodots$.	
	B. If other document, date & description:	
	C. What is required to be reported? <u>Rad material discharge</u>	
	D. How frequently are reports required? <u>Quarterly</u>	
	E. Have reports been on-time, complete & signed by proper person?	Yes⊠ No□
	F. If no, explain:	•
32.	IS COMPANY UNDER ANY ENVIRONMENTAL ENFORCEMENT ORDERS OR REQUIREMENTS TO SUBMIT	Yes□ No⊠
	COMPLIANCE SCHEDULE REPORTS?	
If yes:	A. Type and date:	\
	B. Have the reports & actions been on-time & complete?	Yes No
	C. If no, explain:	
33.	ASK COMPANY: IS COMPANY IN COMPLIANCE W/APPLICABLE NESHAP REGULATIONS FOR WW DISCHARGES?	Yes⊠ No□
	[To see if 40CFR63 applies to MSD plant, per §§63.1580(b) & 63.1582(a). Some MDNR-issued Title V air permits for specific processes allow <u>pre-approved</u> WW discharge. City/County-issued air permits are <u>not</u> NESHAP permits.]	
If no:	A. Describe:	
	B. Was MDNR Air Pollution Control informed? (must be done)	Yes No
	, and the state of	162 NO

34.	DOES COMPANY RETAIN ALL WASTEWATER RECORDS FOR AT LEAST 5 YEARS?	Yes⊠ No□
If no:	A. How long does company retain records?	
	B. Was company told to retain for at least 5 years, per ordinance?	Yes No
C.	Where are they kept? <u>In the site contacts files at 4500 Duncan</u>	
35.	IS COMPANY CLASSIFIED AS A SIGNIFICANT INDUSTRIAL USER (SIU)?	Yes⊠ No□
If yes:	A. Check & explain applicable criteria:	
	Process subject to categorical stds under 40 CFR 403.6. Which cat. stds?	
	Process discharge => 25,000 GPD Total process volume: <u>176,751 GPD</u>	•
	Process discharge => 5% of TP ADW hydraulic capacity TP ADW hydraulic capacity: Percen	t:
	Process discharge => 5% of TP ADW organic capacity Which organic pollutant?	
	TP ADW organic capacity: Percent:	
	Reasonable potential for adverse effect on operations Why?	
	Reasonable potential for violating PT std or req't Which ones & why?	
	B. Does company own its bldg (is it listed as the owner in E-CIS)?	Yes⊠ No□
•	If no: C. What is Bldg owner name (use DBA if avail.)?	
	(check E-CIS CAPS Customer Info)	
	D: What is Bldg owner mailing address?	
	(check E-CIS CAPS Customer Info)	
20	DO MCD CLASSIFICATIONS NEED TO DE DEVISEDO	
36.	DO MSD CLASSIFICATIONS NEED TO BE REVISED?	Yes∏ No⊠
If yes:	A. Indicate correct classifications:	
	SIU Non-Significant CIU CIU Surcharge Non-Toxic Process Water Non-Toxic Process Water No Process Discharge Multi-User Special Handle	
	Toxics-Bearing Waste No Process Discharge Multi-User Special Handle	ug\Rilling [_]
	b. Explain changes.	
37.	IS COMPANY CLASSIFIED AS "Multi-User"?	Yes□ No⊠
If yes:	A. Is company's discharge segregated from other tenants' discharge?	Yes No
,	B. If no to A, does the company own the bldg/receive the MSD bills?	Yes No
	C. If yes to B, was company informed it is responsible for total discharge, or else must provide	163 110
	segregated sample points?	Yes No
	D. If no to B, are any Process/P&E Wash-type wastes discharged?	Yes No
	E. If yes to D, are the wastes completely innocuous?	Yes No
	(And explain why/why not:)	
	F. If yes to D, and no to E, company must accept responsibility or provide segregated SP.	
	Acceptance letter date: Or write company with requirement	
	G. If no to D or yes to E, are limits "alert only" on PIMS?	Yes No
	H. Comments:	
38.	IS COMPANY CLASSIFIED AS "Special Handling/Billing"?	Yes□ No⊠
If yes:	A. Why?	
_	B. Are any changes needed to reasons/details?	Yes No
-	C. If yes, explain:	Yes

39. SAMPLE POINTS DJ(y/n)N/A SP# 001 Components: Fed.Reg. Sanitary + Process + P&E wash + Lab waste + No CT blowdown + RO reject + Storm water SP# 003 Fed.Reg. N/A Components: Sanitary + P&E wash + Process + Lab waste + Nο CT Blowdown + Storm water SP# 005 N/A Fed.Reg. Components: Sanitary + Process + P&E wash + RO reject + Νo Boiler blowdown + Lab waste + Kitchen waste + CT Blowdown + Storm water SP# 006 N/Å Fed.Reg. Components: Sanitary + P&E wash + Storm water No SP# 007 Fed.Reg. N/A Components: Sanitary + P&E wash + Lab waste + CT blowdown No + Storm water SP# 800 Fed.Reg. N/A Components: Sanitary + P&E wash + Lab waste + RO reject + Process + CT blowdown + Storm water SP# 009 N/A Fed.Reg. Components: Sanitary + Process + P&E wash + Lab waste + No RO reject + CT blowdown + Storm water 40. ARE ANY SAMPLE POINTS TRAPPED VENTS? Yes⊠ No□ If yes: A. List SPs: SP006 Was co. informed that T-vents are preferred, and told why? Yes No Yes No⊠ 41. ARE DISCHARGES AT ANY SPS SMALL/IRREGULAR ENOUGH TO ALLOW GRAB SAMPLES? If ves: A. List SPs and reasons: 42. ARE THERE ANY UNSAMPLED DISCHARGES? (list each lateral separately) Yes⊡ No⊠ Dummy SP # Components: Dummy SP # Components: 43. DO ANY SAMPLE POINTS (including Unsampled/Dummy SPs) RECEIVE STORMWATER? Yes⊠ No□ If yes: A. List Sample Points: SP001, SP003, SP005, SP006, SP007, SP008, SP009 44. WERE ALL SAMPLE POINTS (except Dummy SPs) OPENED & INSPECTED? No SPs Yes No ☐ A. If any SPs cannot be located or opened, explain: B. If any SP descript's need to be changed, explain: C. Was ANY grease or other problem/debris observed in any SP? Yes No⊠ D. If yes to C, list SPs & describe: E. If yes to C, was company directed to take corrective actions? Yes No REVIEW THE SAMPLE POINT MAP! 45. Last map revision date: 7/9/12 A. Is the map correct and accurate in all its details? Yes⊠ No□ If no, what changes are needed: 46. DO INSTRUCTIONS FOR "Contact Prior to Sampling" or FIELD VISIT "Special Instructions" NEED REVISION? Yes No No If yes: A. List needed changes: USE THIS SPACE FOR ANY OTHER COMMENTS/OBSERVATIONS PERTINENT TO YOUR INSPECTION OF THIS SITE. Washington University Medical School is comprised of multiple research laboratories and teaching facilities. Lab waste, hazardous materials and radioactive materials are sent to the Hazardous Materials Building located at 4500 Duncan Avenue or Building 80 where the waste is processed and shipped out. Sample points and associated buildings: SP001: 4533 Clayton, HAP, 4560 Clayton, CID SP003: Wohl Clinic, Wohl Hospital, Barnard, Renard, Mallinkrodt Institute of Radiology, Maternity, McMillian, IWJ, West

Inspection report

Annex, Biotech, East, East Imaging

SP006: Hazardous Material Building and Environmental Offices

SP005: Power Plant, FLTC, North, Cancer Research, South, Becker Library, McDonnell Medical Sciences, Olin, East McDonnell, Library

SP007: Biomedical Computing Lab, Shriner's, SIRF, SIRF east SP008: BJCIH, Peds, CSRB North Tower, Northwest Tower

SP009: BJCIH

Lab waste is reportedly picked up within 6 months of the waste being generated. Once the waste has been picked up by the Environmental Dept. it is transported to Building 80 at 4500 Duncan Avenue. The waste is reportedly disposed of or hauled off site within 10 days of being received by the Environmental Department.

A Commercial/Industrial User Wastewater Survey was received by MSD on July 23, 2013 for a new scientific/medical research building at the Wash U Med School campus. The new research building is reportedly scheduled to be complete by mid 2015.

Additionally, a new Hazardous Waste Building and Environmental Offices will be constructed and should be complete sometime in 2015. Once the new Haz Waste Building is complete, the current Haz Waste Building will be vacated. New SPs will be need for these new buildings. The contact stated that Wash U will be attempting to tie into existing sample points.

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME

PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL

1024353000 Premise Address

dress 660 S. Euclid Ave. St. Louis MO. 63110

INDUSTRIAL USER CLASSIFICATIONS WUNNENBERGINFO. SIU CRITERIA 01/12/1999 Base Map 19G3 PR25 Process Disch => 25,000 GPD 06/09/1998 TOX Wun:St. Louis City & Co. Grid: J 20 Page 26 INSPECTION INFORMATION GENERAL INFORMATION 1 PERMIT INFORMATION IUQ INFORMATION ... Office Mailing Address Issue Date: 01/01/2013 IUQ Recvd Date: 08/19/2002 Next Due 660 S. Euclid Ave., Campus Box 8229 Insp Rslt Expire Date: 12/31/2017 Reviewer: Fabian Grabski St. Louis, MO. 63110 Extended Date: IUQ Recvd Date: 06/28/2007 02/26/2014 RIN Mike Kynion **Billing Address** Writer Scott Rehmer Reviewer: James Goodall 660 S Euclid Ave. IUQ Recvd Date: 07/13/2012 St Louis, MO. 63110 Reviewer: Jason Gill CONTACTS BILL Livi Isringhausen Environmental Compliance Manager OFF (314) 362-6735 Ext. FLDI Livi Isringhausen Environmental Compliance Manager FAX (314) 362-1095 Ext. Livi Isringhausen Environmental Compliance Manager CELL (618) 410-6140 Ext. Livi Isringhausen Environmental Compliance Manager OFF (314) 362-6735 Ext. FLD2 Linda Vishino Environmental Compliance Officer OFF (314) 935-7864 Ext. OFFI Environmental Compliance Manager Livi Isringhausen OFF (314) 362-6735 Ext. Livi Isringhausen Environmental Compliance Manager FAX (314) 362-1095 Ext. OPERATIONAL INFORMATION OTHER AGENCIES INFORMATION: 01/03/1997 **Nuclear Regulatory Commission** 24-00167-11 Work Days: \mathbf{T} S F 01/04/1997 MDNR - Hazardous Waste Program 001591 6,500 09:00AM 8.0 Ý Υ Y Y 01/05/1997 MOT300010857 EPA - Hazardous Waste Program 2 600 06:00PM 8.0 09/28/2005 MSD - Billing Account Number 00246499 Total Emp: 7,100 Hrs: 16.0 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246504 NON-SEWERED WASTE 09/28/2005 MSD - Billing Account Number 00246496 On-Site Disposal Off-Site Disposal On-Site Storage 09/28/2005 MSD - Billing Account Number 00246495 07/13/2012 Equipment Oils and/or Grease 8,000 LBS 09/28/2005 MSD - Billing Account Number 00377308 07/13/2012 Infectious Waste 370,200 LBS 07/21/2011 MSD - Billing Account Number 00473620 07/13/2012 Kitchen/Food Service Grease 6.000 LBS 07/13/2012 Organic Compounds 27,000 LBS 2,700 07/13/2012 Paints or Paint Sludges LBS 1,500 07/13/2012 Radioactive Waste LBS 07/13/2012 Solvents/Thinners 53,000 LBS 07/13/2012 Other Lab chemicals/reagents 13,500 LBS <u>O</u> M M N $\overline{\mathbf{T}}$ RAW MATERIALS SIC INFORMATION EFF DATE MATERIAL DESCRIPTION QUANTITY UNIT SIC DESCRIPTION Laboratory chemicals & reagents 05/07/2004 0279 Animal Specialties, NEC 8221 Colleges, Universities & Professional Schools 8733 Noncommercial Research Organizations PRODUCTS EFF DATE DESCRIPTION UNIT AVG_PROD MAX_PROD 05/07/2004 Medical school 05/07/2004 Research institution 05/07/2004 Research animal care & housing Report No. PIMS012A 03/13/2014 3:10:30 pm Data Date & Time: 03/13/2014 3:10:30 pm

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRÝ NAME PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address 1024353000

660 S. Euclid Ave. St. Louis MO. 63110

WATER CONSUMPTION AND WASTEWA	TER DIS	CHARGE		
Start Date = 03/13/2013 3 End Date =	03/13/	/2014 3:10:24PN	Vdays Cdays	
Acct. No.	<u>Co</u>	nsumption		Discharge
1024352900	CCF's	Gallons	,	Gal/ Wday Gal/ Cday
1024352900 02/15/2013 05/02/2013	. 201	201 A	77 77	77
1024352900 05/03/2013 07/31/2013	1,400	1,601	90 90	167
1024352900 08/01/2013 11/14/2013	1,797	3,398	106 106	273
RF 1.00 Acct. Total	3,398	2,541,881	273	273 9,311 9,311
1024353000	CCF's	Gallons	•	Gal/ Wday Gal/ Cday
1024353000 02/09/2013 05/13/2013	10,773	10,773 A	94 94	94
1024353000 05/14/2013 08/07/2013	12,963	23,736	86 86	180
1024353000 08/08/2013 11/18/2013	13,810	-	103 103	283
RF 0.90 Acct. Total	37,546		283	283 89,321 89,321
1024353200	CCF's	Gallons		Gal/ Wday Gal/ Cday
1024353200 02/15/2013 05/17/2013	18,601	18,601 A	92 92	92
1024353200 05/18/2013 08/15/2013	26,037	44,638	90 90	182
1024353200 08/16/2013 11/14/2013	26,249	70,887	91 91	273
RF 0.68 Acct. Total	70,887		273	273 132,082 132,082
1024353300	CCF's	Gallons		Gal/ Wday Gal/ Cday
1024353300 02/06/2013 05/02/2013	100	100 A	86 86	86
1024353300 05/03/2013 07/31/2013	100	200	90 90	176
1024353300 08/01/2013 11/04/2013	400	600	96 96	272
RF 1.00 Acct. Total	600	448,831	272	272 1,650 1,650
1037377700	CCF's	Gallons		Gal/ Wday Gal/ Cday
1037377700 02/14/2013 05/17/2013	7,894	7,894 A	93 93	93
1037377700 05/18/2013 07/3	8,616	16,510	75 75	168
1037377700 08/01/2013 11/04/2013	11,938	28,448	96 96	264
RF 0.77 Acct. Total 1048106300	28,448	, ,	264	264 62,068 62,068
,	CCF's	Gallons	0.6	Gal/ Wday Gal/ Cday
1048106300 02/06/2013 05/02/2013	1.1,670	11,670 A	86 86	86
1048106300 05/03/2013 07/31/2013	21,458	33,128	90 90	176
1048106300 08/01/2013 11/04/2013	21,696	54,824	96 96	272
RF 1.00 Acct. Total		41,011,203	272	272 150,776 150,776
Facility Total	195,703		000000000000000000000000000000000000000	

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME

Report No. PIMS012A

Data Date & Time:

03/13/2014

03/13/2014

3:10:30 pm

3:10:30 pm

PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL

1024353000 Premise Address

660 S. Euclid Ave. St. Louis MO. 63110

CONNECTION and SAMPLE POINT INFORMATION DSMH LATERAL NO. Lateral Type Treatment Area Bissell Point 20G2 232C 37 - Western Mill Creek 01 Sanitary Or Combined Trunk Sewer Description Lateral from buildings located S of McKinley Av & E of Euclid Av Sewer Route S on Taylor to Clayton Av, E to Boyle, N to Duncan then E to trunk to treatment plant SAMPLE POINT NO. 001 Ordinance NPDES Outfall No. Description Flow from W in MH 30' N, 10' W of NE corner of building 27 (in alley) Effective -Date **Discharge Components Process Description** Avg Flow Unit Max Flow Unit RUD Regeneration/Reject Water 3,518 GPD GPD 7/13/12 D Plant & Equipment Washdown 468 GPD **GPD** D 7/13/12 Process Waste Photographic & teaching labs 671 GPD GPD Ď 7/13/12 Sanitary 5,199 GPD **GPD** D 7/13/12 Storm Water 0 GPD **GPD** D 7/13/12 Laboratory Waste Research labs 1,733 GPD **GPD** 7/13/12 D Cooling Tower Blowdown 3,250 GPD **GPD** D 2/27/13 Total Flow Avg = 14,839 Max = CONNECTION and SAMPLE POINT INFORMATION DSMH LATERAL NO. Lateral Type Treatment Area Bissell Point 02 Sanitary Or Combined 19G3 229C Trunk Sewer 37 - Western Mill Creek Description Lateral from buildings N&S of Scott Av & E of Euclid Sewer Route S on Taylor to Clayton Av, E to Boyle, N to Duncan then E to trunk to treatment plant SAMPLE POINT NO. 005 Ordinance NPDES Outfall No. Description MH 200' W of Taylor Ave. on S side of Scott Ave. in street Effective **Discharge Components Process Description** Avg Flow Unit Max Flow Unit RUD Date Regeneration/Reject Water 32,761 GPD **GPD** D 7/13/12 Boiler Blowdown 39,666 GPD **GPD** D 7/13/12 Plant & Equipment Washdown 1,996 GPD **GPD** D 7/13/12 Process Waste Photographic & teaching labs 840 GPD **GPD** D 7/13/12 Sanitary 75,445 GPD **GPD** D 7/13/12 Storm Water 0 GPD **GPD** D 7/13/12 Laboratory Waste Lab research & animal care 93,406 GPD **GPD** D 7/13/12 Kitchen Waste 9,176 GPD **GPD** D 7/13/12 88,038 GPD Cooling Tower Blowdown **GPD** D 2/27/13 Total Flow Avg = 341,328 Max = CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type DSMH Treatment Area 03 Sanitary Or Combined 19G3 543C Trunk Sewer 79 - River des Peres - Upper Description Lateral N from Building 14 W of Euclid Av to courtyard Sewer Route W across S Kingshighway Blvd into Forest Park to trunk to treatment plant SAMPLE POINT NO. 003 Ordinance NPDES Outfall No. Description Flow from S in MH N of building 14 in drive, 6' S of O2 tanks Effective Discharge Components **Process Description** Avg Flow Unit Max Flow RUD Date Unit Plant & Equipment Washdown 2,179 GPD **GPD** D 7/13/12 Process Waste Photographic & teaching labs 546 GPD **GPD** D 7/13/12 Sanitary 31,974 GPD **GPD** D 7/13/12 Storm Water 0 GPD **GPD** D 7/13/12 Laboratory Waste Research labs & animal care 23,284 GPD **GPD** D 7/13/12 Cooling Tower Blowdown 6,120 GPD GPD D 2/27/13

MSD 044290

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION INDUSTRY NAME WASHINGTON UNIVERSITY MEDICAL SCHOOL PRIMARY MSD ACCOUNT NO 1024353000 Premise Address St. Louis M.

PRIMARY MSD ACCOUNT NO. 1024353000

660 S. Euclid Ave. St. Louis MO. 63110

PRIMART MISD ACCOUNT NO. 1024333000			St. Louis M	0.63110	
Total Flow Avg =	64,103	Max =			
CONNECTION and SAMPLE POINT INFORMATION					
LATERAL NO. Lateral Type	DSMH T	reatment Area	Bissell Point		
04 Sanitary Or Combined	19G3 259C	Trunk Sewer	37 - Western Mill C	reek	
Description 8" lateral E from Building 80 at Taylor and Par	 kview to an unname	d street			
Sewer Route N to Parkview to Duncan, E to trunk to treatme	nt plant				
SAMPLE POINT NO. 006 Ordinance	NPD	ES Outfall No. '			
Description 6" trapped clay pipe 13' N, 9' E of SE corner	of building 80				
Discharge Components Process Description	Avg Flow	Unit Ma	ıx Flow Unit	RUD	Effective Daté
Plant & Equipment Washdown	1	GPD	GPD	D	7/13/12
Sanitary	1	GPD .	GPD	D	7/13/12
Storm Water	1	GPD	GPD	D	7/13/12
Total Flow Avg =	1,034	Max =	01.0	D	1113/12
	.,007	1 - 4 - 4 - 7		000000000000000000000000000000000000000	920900000000000000000000000000000000000
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type	DOMI!	acatina a t - t	Discott Dates		
	DSMH Ti 20G2 235C	Trunk Sawar	Bissell Point 37 - Western Mill C	rool-	
Santary Or Combined	2002 2330	Trunk Sewer	37 - western Mill C	ICCK	
Description Multiple lines from Bldg 63 N to McKinley		•			
Sewer Route E on McKinley to Taylor, S to Clayton, E to Bo	to Duncan, tl	nen E to trunk to t	reatment plant		
SAMPLE POINT NO. 007 Ordinance	NPD	ES Outfall No.			
Description Manhole in sidewalk E of Bldg 63; 111' N, 2	}				
·		_			Effective
Discharge Components Process Description	Avg Flow	Unit Ma	x Flow Unit	RUD	Date
Plant & Equipment Washdown	1	GPD	GPD	D	7/13/12
Sanitary	1	GPD	GPD '	D	7/13/12
Storm Water	1	GPD	GPD	D	7/13/12
Laboratory Waste Lab research & animal care	10,327		GPD	D	7/13/12
Cooling Tower Blowdown	1	GPD	GPD	D	2/27/13
Total Flow Avg =	23,450	Max =			
CONNECTION and SAMPLE POINT INFORMATION	**************************************	**************************************	0.000.00000000000000000000000000000000	000000000000000000000000000000000000000	######################################
LATERAL NO. Lateral Type	1	eatment Area	Lemay		
06 Sanitary Or Combined	19G3 492C	Trunk Sewer	82 - Euclid		
Description Line exiting N side of Bldg 4 (425 S. Euclid) to	main on Children's	PI.			
Sewer Route Flow N from bldg to main on Children's Pl, E a	 cross Kingshighway 	to trunk sewer, S	along RDP to STP		
SAMPLE POINT NO. 008 Ordinance	NPDI	ES Outfall No.			
Description MH in plaza 27' W, 27' N of NE bldg corner				•	
					Effective
Discharge Components Process Description	Avg Flow		x Flow Unit	RUD	Date
Regeneration/Reject Water	33,618	·	· GPD	D	7/13/12
Plant & Equipment Washdown	1	GPD	GPD	D	7/13/12
Process Waste Photographic & teaching labs	•	GPD	GPD	D	7/13/12
Sanitary	49,681		ĞPD	D	7/13/12
Storm Water	1	GPD	GPD	D	7/13/12
Laboratory Waste Lab research & animal care	16,560		GPD	D	7/13/12
Cooling Tower Blowdown	31,057		GPD	D	2/27/13
Total Flow Avg =	141,800	Max =		***************************************	
•					

Report No. PIMS012A	03/13/2014	3:10:30 pm
Data Date & Time:	03/13/2014	3:10:30 pm

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME

WASHINGTON UNIVERSITY MEDICAL SCHOOL PRIMARY MSD ACCOUNT NO. 1024353000

660 S. Euclid Ave. St. Louis MO. 63110

	1	000000000000000000000000000000000000000		. St. Louis IV			-
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type 07 Sanitary Or Combined	DSMH Ti 19G3 187C	reatment A Trunk S		•	***************************************		
Description Line exiting E side of Bldg 4 (425 S. Euclid) to	main on Euclid						
Sewer Route Flow E from bldg to main on Euclid, E on Chile	 dren's Pl. across Kir 	ngshighway	, S to trunk alor	ng RDP to ST	Р		
SAMPLE POINT NO. 009 Ordinance	NPDI	ES Outfall	No.				
Description MH in E plaza 36' N, 27' E of S NE bldg						Effective	
Discharge Components Process Description	Avg Flow	Unit	Max Flow	Unit	RUD	Date	,
Regeneration/Reject Water	33,618	GPD		GPD	D	7/13/12	
Plant & Equipment Washdown	4,472	GPD	*	GPD	D	7/13/12	
Process Waste Photographic & teaching labs	6,412	GPD		GPD	D	7/13/12	
Sanitary	49,681	GPD		GPD	D	7/13/12	*
Storm Water	0	GPD		GPD	D	7/13/12	
Laboratory Waste Lab research & animal care	16,560	GPD		GPD	D	7/13/12	
Cooling Tower Blowdown	31,057	GPD		GPD	D	2/27/13	
Total Flow Avg =	141,800	N	lax =				
PRETREATMENT TYPES	***************************************					itelia biarka a a sa s	
SP EFF DATE TYPE DESCRIPTION							
001 09/02/1998 DC32 Metallic Replacement							
001 07/13/2012 DC37 pH Adjustment/Neutralization							
003 09/02/1998 DC32 Metallic Replacement							
003 09/02/1998 DC37 pH Adjustment/Neutralization							
005 07/17/2007 DC32 Metallic Replacement 005 07/17/2007 DC37 pH Adjustment/Neutralization							
005 07/17/2007 DC37 pH Adjustment/Neutralization 005 06/16/1999 DC28 Grease Trap							
006 05/08/2001 DC37 pH Adjustment/Neutralization			•				
007 07/17/2007 DC37 pH Adjustment/Neutralization							
008 07/13/2012 DC37 pH Adjustment/Neutralization					-		
008 07/13/2012 DC32 Metallic Replacement							
009 07/13/2012 DC32 Metallic Replacement				•			
009 07/13/2012 DC37 pH Adjustment/Neutralization							

Report No. PIMS012A Data Date & Time:

03/13/2014

3:10:30 pm

03/13/2014

3:10:30 pm

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME

PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address 1024353000

660 S. Euclid Ave. St. Louis MO. 63110

Pollutant Description	Status	Pollutant Description	Status	Pollutant Description	<u>Status</u>
Cyanide (Total)	KP	Asbestos (Fibrous)	SP	Antimony (Total)	KP
Silver (Total)	KP	Selenium (Total)	KP	Copper (Total)	KP
Cadmium (Total)	KP	Beryllium (Total)	KP	Zinc (Total)	KP
hallium (Total)	. KP	Nickel (Total)	KP	Mercury (Total)	KP
ead (Total)	KP	Chromium (Total)	. KP	Arsenic (Total)	KP
henol	KP	Isophorone	KP	4-Nitrophenol	KP
,4-Dinitrophenol	SP	2-Chlorophenol	KP	Pyrene	KP
entachlorophenol	KP	Nitrobenzene	KP	Hexachlorocyclopentadiene	KP
lexachlorobenzene	SP	Gamma-BHC	KP	Benzo (A) Pyrene	KP
Benzidine	KP	Aldrin	KP	Acrolein	KP
oluene	KP	Methylene Chloride	KP	Chlorobenzene	KP
,1,1-Trichloroethane	SP	Chloroform	KP	Carbon Tetrachloride	KP
enzene	KP	1,2-Dichloroethane	KP	1,1,2-Trichloroethane	SP
cenaphthylene	KP	Acenaphthene	KP	2,4,6-Trichlorophenol	SP
,4-Dinitrotoluene	. KP	1,2-Diphenylhydrazine	KP	Bis (2-Chloroethoxy) Methane	SP
Anthracene	KP	2,6-Dinitrotoluene	SP	2,4-Dichlorophenol	SP
-Nitrophenol	· KP	Phenanthrene	KP	Naphthalene	KP
lexachloroethane	KP	Heptachlor Epoxide	KP	Diethyl Phthalate	KP
ieldrin	KP	Chlordane	SP	Bis (2-Chloroisopropyl) Ether	SP
is (2-Chloroethyl) Ether	SP	1,2-Dichlorobenzene	KP	Trichloroethene	SP
thylbenzene	KP	Bromoform	KP	Acrylonitrile	KP
,4-Dichlorobenzene	KP	1,1,2,2-Tetrachloroethane	KP		

EXTRA STRENGTH SURCHARGE INFORMATION

Report No. PIMS012A Data Date & Time:

03/13/2014 03/13/2014

3:10:30 pm 3:10:30 pm

PIMS FACILITY CONTACTS	WASHINGTON UNIVERSITY MEDICAL SCHOOL	
PIMS	er Selected 1024353000	4 1.1 L O O O O O O O O O O O O O O O O O O
	For Account Number Selected	,

Located at 660 S. Euclid Ave. St. Louis MO

MO 63110

Address Type							
Contact Type	Contact Name	Contact Title	Email	Signato	Signatory Phone Type Number		Ext.
Billing Address							
Billing Contact	Livi Isringhausen	Environmental Compliance Manager	nager	>	OFF	(314)362-6735	
Office Mailing Address)	.					
Office Contact - Primary	Livi Isringhausen	Environmental Compliance Manager	nager	>	FAX	(314)362-1095	
Office Contact - Primary	Livi Isringhausen	Environmental Compliance Manager	nager	>	OFF	(314)362-6735	
Premise Address		· •)		· ·		
Field Contact - Primary	Livi Isringhausen	Environmental Compliance Man	Environmental Compliance Manager isringhausenm@wusm.wustl.edu	>	CELL	(618)410-6140	
Field Contact - Primary	Livi Isringhausen	Environmental Compliance Man	Environmental Compliance Manager isringhausenm@wusm.wustl.edu	>	FAX	(314)362-1095	
Field Contact - Primary	Livi Isringhausen	Environmental Compliance Man	Environmental Compliance Manager isringhausenm@wusm.wustl.edu	>	OFF	(314)362-6735	
Field Contact 1st Alt	Linda Vishino	Environmental Compliance Officer	icer	>	OFF	(314)935-7864	

03/04/2014 10:58:38AM

Modification Date: Modification Time:

PIMS REPORT OF FIELD SAMPLING REQUIREMENTS WASHINGTON UNIVERSITY MEDICAL SCHOOL

Account No Entered 1024353000

SPN	PR	EMISE ADDRESS		CITY	ST	ZIP
000000000000000000000000000000000000000	660	S. Euclid Ave.		St. Lo	uis MO	63110
001 Project Code:		IPD - Company - M				End Date
Pollutant Group	Poll Code	•	1	Frequency	Sample Type	
	T208000 T213000	Biochemical Oxygen L Chemical Oxygen Den		Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2014 06/30/2014
,	T237000	pH		Once/year	Grab	06/30/2014
	T247000	Temperature		Once/year	Grab	06/30/2014
	T256000	Total Suspended Solids	S	Once/year	Comp-Time 04 Hrs	06/30/2014
	T257000	Total Phenols		Once/year	Grab	06/30/2014
	T393000	Silver (Total)		Once/year	Comp-Time 04 Hrs	06/30/2014
Phenolic Organics - Acids	T991000	Phenolic Organics - Ac	ids	Once/year	Grab	06/30/2014
Semi-Volatile Organics - Bas	e/NQQ46000	Semi-Volatile Organics	- Base/Neutrals	Once/year	Comp-Time 04 Hrs	06/30/2014
Semi-Volatile Organics - Acid	daT995000	Semi-Volatile Organics	- Acids	Once/year	Comp-Time 04 Hrs	06/30/2014
Volatile Organics	T996000	Volatile Orgs-not incl	Acro/Acryl & 2-c	ch@noe/hgar	Grab	06/30/2014
002 P : 4 C I:	754	IDD C M				
Pollutant Group	Poll Code	IPD - Company - Management Pollutant Description	SD	Frequency	Sample Type	End Date
i onitiant Oroup			Jamand (* 1			
	T208000 T213000	Biochemical Oxygen D		Once/year	Comp-Time 04 Hrs	06/30/2014
	T237000	Chemical Oxygen Den pH	land	Once/year	Comp-Time 04 Hrs Gråb	06/30/2014 06/30/2014
4	T247000	Temperature		Once/year Once/year	Grab Grab	06/30/2014
	T256000	Total Suspended Solids		Once/year	Comp-Time 04 Hrs	06/30/2014
,	T257000	Total Phenols	<u> </u>	Once/year	Grab	06/30/2014
	T393000	Silver (Total)		Once/year	Comp-Time 04 Hrs	06/30/2014
Phenolic Órganics - Acids	T991000	Phenolic Organics - Ac	l ids	Once/year	Grab	06/30/2014
Semi-Volatile Organics - Base		Semi-Volatile Organics	1	•	Comp-Time 04 Hrs	06/30/2014
Semi-Volatile Organics - Acid		Semi-Volatile Organics	1	Once/year	Comp-Time 04 Hrs	06/30/2014
Volatile Organics	T996000	Volatile Orgs-not incl	1	•	Grab	06/30/2014
005 Project Code: Pollutant Group	IM =	IPD - Company - MS Pollutant Description	SD	Triannia an	Cample True	End Date
· Tonutant Group				Frequency	Sample Type	
	T208000	Biochemical Oxygen D		Once/year	Comp-Time 04 Hrs	06/30/2014
	T213000	Chemical Oxygen Dem Oil and Grease (Total)	iand 	Once/year	Comp-Time 04 Hrs	06/30/2014
	T234000 T237000	` /		Once/year	Grab	06/30/2014
	T247000	pH Tananaratura		Once/year	Grab	06/30/2014
	T256000	Temperature Total Suspended Solids		Once/year	Grab	06/30/2014
	T257000	Total Phenols		Once/year Once/year	Comp-Time 04 Hrs Grab	06/30/2014 06/30/2014
	T393000	Silver (Total)		Once/year Once/year	Comp-Time 04 Hrs	06/30/2014 06/30/2014
Phenolic Organics - Acids	T991000	Phenolic Organics - Ac	lds	Once/year	Grab	06/30/2014
Semi-Volatile Organics - Base		Semi-Volatile Organics	1		Comp-Time 04 Hrs	06/30/2014
emi-Volatile Organics - Acid		Semi-Volatile Organics	1	Once/year	Comp-Time 04 Hrs	06/30/2014
Volatile Organics	T996000	Volatile Orgs-not incl			Grab	06/30/2014
					•	
006 Project Code: Pollutant Group	IM = Poll Code	IPD - Company - MS Pollutant Description	SD	Frequency	Sample Type	End Date
	1208000	Biochemical Oxygen D	emand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2014
	T213000	Chemical Oxygen Dem		Once/year	Comp-Time 04 Hrs	06/30/2014
	T234000	Oil and Grease (Total)		Once/year	Grab	06/30/2014
	T237000	pH		Once/year	Grab	06/30/2014
	T247000	Temperature		Once/year	Grab	06/30/2014
	T256000	Total Suspended Solids		Once/year	Comp-Time 04 Hrs	06/30/2014
	T257000	Total Phenols		Once/year	Grab	06/30/2014
	T393000	Silver (Total)		Once/year	Comp-Time 04 Hrs	06/30/2014
Report No. PIMS067A 3	74/2014	10:59:02AM				
Data Date & Time	3/4/2014	10:59:02AM	1	of 3		

PIMS REPORT OF FIELD SAMPLING REQUIREMENTS WASHINGTON UNIVERSITY MEDICAL SCHOOL

Account No Entered 1024353000

SPN	PR	EMISE ADDRESS		CITY	ST	ZIP		•
Phenolic Organics - Acids	T991000	Phenolic Organics - Ac	ids	Once/year	Grab		06/30/2014	***************************************
Semi-Volatile Organics - Ba	se/NQQ4600	Semi-Volatile Organics	 s - Base/Neutrals		Comp-Time 04 Hrs		06/30/2014	
Semi-Volatile Organics - Ac		Semi-Volatile Organics	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
Volatile Organics	T996000	Volatile Orgs-not incl	1.	•	Grab		06/30/2014	
· · · · · · · · · · · · · · · · · · ·	,,,,,,,,,,						00/30/2011	
007 Project Code:	IM=	IPD - Company - M					•	
Pollutant Group	Poll Code	Pollutant Description		Frequency	Sample Type		End Date	
***************************************	T208000	Biochemical Oxygen D	emand (5 Day)	Once/year	Comp-Time 04 Hrs	annon annon annon annon annon annon annon anno	06/30/2014	
	T213000	Chemical Oxygen Dem	iand	Once/year	Comp-Time 04 Hrs		06/30/2014	
•	T234000	Oil and Grease (Total)		Once/year	Grab		06/30/2014	
	T237000	pΗ		Once/year	Grab		06/30/2014	
	T247000	Temperature		Once/year	Grab		06/30/2014	-
•	T256000	Total Suspended Solids	·	Once/year	Comp-Time 04 Hrs		06/30/2014	
•	T257000	Total Phenois		Once/year	Grab	•	06/30/2014	
	T393000	Silver (Total)		Once/year	Comp-Time 04 Hrs		06/30/2014	
Phenolic Organics - Acids	T991000	Phenolic Organics - Ac	ide	Once/year	Grab		06/30/2014	
Semi-Volatile Organics - Bas		Semi-Volatile Organics	1	-				
· -			1		Comp-Time 04 Hrs		06/30/2014	
Semi-Volatile Organics - Ac		Semi-Volatile Organics	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
Volatile Organics	Т996000	Volatile Orgs-not incl	Acro/Acryl & 2-c	hlenoethgar	Grab	•	06/30/2014	
000 During Code	Th.a	IDD Comment Mi	C D				•	
008 Project Code: Pollutant Group	Poll Code	IPD - Company - MS Pollutant Description	שפ	Frequency	Sample Type		End Date	
	T208000	Biochemical Oxygen D	emand (5 Day)	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T213000	Chemical Oxygen Dem	and	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T234000	Oil and Grease (Total)		Once/year	Grab		06/30/2014	
	T237000	pH		Once/year	Grab		06/30/2014	
	T247000	Temperature		Once/year	Grab		06/30/2014	
	T256000	Total Suspended Solids	,	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T257000	Total Phenols		Once/year	Grab		06/30/2014	
	T335000	Chromium (Total)		Once/year	Comp-Time 04 Hrs		06/30/2014	
	T339000	Copper (Total)		Once/year	Comp-Time 04 Hrs		06/30/2014	
	T368000	Lead (Total)		Once/year	Comp-Time 04 Hrs		06/30/2014	
	T377000	Nickel (Total)		Once/year	Comp-Time 04 Hrs		06/30/2014	
	T393000	Silver (Total)		Once/year	Comp-Time 04 Hrs			
	T403000	Zinc (Total)		Once/year	Comp-Time 04 Hrs		06/30/2014	
Phanolia Organias Agids	T991000	Phenolic Organics - Ac	4-	•	•		06/30/2014	
Phenolic Organics - Acids		•	1	Once/year	Grab		06/30/2014	
Semi-Volatile Organics - Bas		Semi-Volatile Organics	1	•	Comp-Time 04 Hrs		06/30/2014	
Semi-Volatile Organics - Aci		Semi-Volatile Organics	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
Volatile Organics	Т996000	Volatile Orgs-not incl A	Cro/Acryl & 2-cl	illémoethgár	Grab		06/30/2014	
009 Project Code:	IM=	IPD - Company - MS	0					
Pollutant Group	Poll Code		,	Frequency	Sample Type		End Date	
	1208000	Biochemical Oxygen D	emand (5 Day)	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T213000	Chemical Oxygen Dem	and	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T234000	Oil and Grease (Total)		Once/year	Grab		06/30/2014	
	T237000	рН	1	Once/year	Grab		06/30/2014	
	T247000	Temperature	1	Once/year	Grab		06/30/2014	
•	T256000	Total Suspended Solids	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
•	T257000	Total Phenols	į.	Once/year	Grab		06/30/2014	
	T335000	Chromium (Total)	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T339000 -	Copper (Total)	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T368000	Lead (Total)	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
•	T377000	Nickel (Total)	į.	Once/year	Comp-Time 04 Hrs		06/30/2014	
	T393000	Silver (Total)	ŧ	Once/year	Comp-Time 04 Hrs			
	T403000	Zinc (Total)	1	Once/year	Comp-Time 04 Hrs		06/30/2014	
Report No. PIMS067A	3/4/2014	10:59:02AM		Onco year	Comp-1 line 04 MIS		06/30/2014	***************************************
Data Date & Time	3/4/2014	10:59:02AM 10:59:02AM	2	of 3				
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PIMS

	REMISE ADDRESS	CITY	ST	ZIP	
henolic Organics - Acids T99100 emi-Volatile Organics - Base/N99400 emi-Volatile Organics - Acids 99500 Volatile Organics T99600	Semi-Volatile Organic Semi-Volatile Organic	s - Base/Neutrals Once/year	Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Grab		06/30/2014 06/30/2014 06/30/2014 06/30/2014
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METROPOLITAN ST. LOUIS SEWER DISTRICT DIVISION OF ENVIRONMENTAL COMPLIANCE 10 East Grand Ave., St. Louis, MO 63147, 314-436-8710

10f2

COMMERCIAL/INDUSTRIAL USER WASTEWATER SURVEY

1.	MSD P-Reference Number P-0029713-00 (see instructions)
2.	MSD Account Number 0246496-4 Telephone Number 747-0740
	Company Name WASHINGTON UNIVERSITY SCHOOL OF MEDICINE 1024353000
	Mailing Address 660 5 Euclio Ave.
	ST. Louis Ma asito
	Premise Address 4515 McKINLET AVE
	ST. LOUIS MO 63110
3.	No. of Employees 7 No. days/week 7 No. shifts/day 3. Peak months Company
4.	Please check off all items which describe activities at your premise:
	Doctor/Dental ServManufacturingProduct FormulatingVehicle MaintenanceOfficesProduct PackagingVeterinarian
	Health Care ServPhoto/X-Ray ProcResidentialWarehousing
	Laundromat
	KOther (describe) RESEARCH LABORATORIES - MEDICAL SCHOOL
5.	Provide a brief description of the specific activities performed at this establishment:
	SCIONTIFIC / MEDICAL ROSEARCH ON AN ACADEMIC SCALE
6.	Raw materials & chemicals: CHEMICALS & LABORATORY. REACENTS
	Final products/services: LABORA TORY RESEARCH
7.	
	If yes, list them: U/A
8.	Do you
	Use water in any manufacturing process? Yes No Avg vol/day Use water for cooling purposes? Yes No Avg vol/day
	Use water in a boiler system? Yes No Avg vol/day
•	Use any air pollution devices w/water? Yes_ No_ Avg vol/day
	Have any underground storage tanks? Yes No # Contents:
	Use or have on site any oils or grease? Yes No X List:
	Use or have on site any solvents? Yes X No List: SEE ATTACHED LIST # I
9.	Do you prepare metal parts for any coating or painting step? Yes No_X
	If yes, is an acid or acid-containing product used? Yes No X
	List the acid or product used: NA
10.	Do you generate hazardous waste? Yes No MO hazardous waste generator # 001591
	If yes, but no HW #, explain:
	List hazardous wastes generated: SEE ATTACHED LIST #2
	==> ATTACH PLANS AND DRAWINGS AS REQUIRED (see instructions)
12.	Information furnished by: Name: Romano CO Locus
	Title: 50. Pag. Mce Telephone No. 314-747-2935
info	rtify under penalty of Law that this document and all attachments were prepared under my direction or supervision; and the mation submitted is, to the best of my knowledge and belief, true, accurate, and complete.
13.	Name and title of official: 11M STUEBER, DIRECTOR OF FACILITIES ENGINEERING
	Telephone No. 747 - 2893
	Signature: 423-13 32007

Hazardous Wastes Generated

Acids

Alkalines

Infectious Wastes

Organic compounds

Radioactive Waste

Solvents / thinners

Lab chemicals / reagents

aceticacid ethyl ester acetone acetonitrile acrylamide Benzenamine benzene butanol carbon tetrachloride chloroform cyclohexane cyclohexanone dichlorobenzene dichloroethane dichloroethane ethyl acetate ethyl ether formaldehyde isobutanol methyl alcohol oil pyridine tetrachlorethylene tetrahydrofuran toluene trichlorethylene xylene

5F 2/5/14

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION ** **

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

··· 2014

√ (Jan-Mar)

(Apr-June)

20日日至1日日中旬

(July-Sept)

Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories
St. Louis Testing Laboratories

Analysis Performed By: **PART II:**

St. Louis Testing Laboratories

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference N	umber	T.	001.	T	003	1	005	T	
Dates on Which Samples Were	Collected	G:	See attached	<u> </u> G:	See attached	- G:	See attached	<u>. </u> .	0,00000
Times at Which Samples Were (G: C:	See attached See attached See attached	G:	See attached See attached	C: G:	See attached See attached	1	
-		Ť	_	IC:	See attached	<u>C:</u>	See attached	1	***************************************
PARAMETER	LIMIT		Georgh Coom	e iyo	es (G.C.M. or E)	And F	Results Below		
Flow	***	ŤΕ	14,500	E	M=measured flo	R .		-	Units
Biological Oxygen Demand	***	Tc	See attached	l 등		ĮΈ		+	Gal/Day
Chemical Oxygen Demand	****	c	See attached	+	See attached	C	See attached	4_	mg/L
Total Suspended Solids	****	c	1	10	See attached	<u> c</u>	See attached	<u> </u>	mg/L
Н	5.5 - 11.5	G	See attached	F	See attached	<u>c</u>	See attached	<u> </u>	mg/L
Oil & Grease	200	G	See attached	G	See attached	G.	See attached	Ŀ	рН
emperature	60	G	See attached	G	See attached	G	See attached	L	mg/L
ilver	0.5		See attached	G	See attached	G	See attached	L	Celcius
otal Phenol	7	<u>C</u>	See attached	C	See attached	С	See attached		mg/L
		G	See attached	. <u>G</u>	See attached	G	See attached		mg/L ·
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You must complete and sign the certification statements on the reverse side.

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JAN 3 1 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2014

√ (Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By: PART II:

St. Louis Testing Laboratories ANALYTICAL RESULTS OF SELF MONITORING

						***************************************				panananananananan-***
MSD Sample Point Reference Numbe	Γ		006		007		800		009	
Dates on Which Samples Were Collect	cted	C:	See attached See attached	C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	
Times at Which Samples Were Collec	ted	G: C:	See attached See attached	G; C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	· .
	,	Reco	ord Sample Type	es (G,6	C,M, or E) And f	Result	s Below			
PARAMETER	LIMIT	G=gi	ab, C-composite	e, M=r	neasured flow,	E=est	imated flow			Units
Flow	***,	E	950	E	23,500		131,850	<u> </u>	131,850	Gal/Day
Biological Oxygen Demand	***	С	See attached	С	See attached		See attached	<u> </u>	See attached	mg/L
Chemical Oxygen Demand	***	С	See attached	Ċ	See attached		See attached	<u> </u>	See attached	mg/L
Total Suspended Solids	****	С	See attached	С	See attached		See attached	<u> </u>	See attached	mg/L
pH.	5.5 - 11.5	G	See attached	G	See attached		See attached	<u> </u>	See attached	pH ⁻
Oil & Grease	200	G	See attached	G	See attached		See attached	<u> </u>	See attached	mg/L
Temperature	60	G	See attached	G	See attached		See attached	<u> </u>	See attached	Celcius
Silver	0.5	С	See attached	<u></u>	See attached		See attached		See attached	mg/L
Total Phenol	7	G	See attached	G	See attached	G:	See attached	G:	See attached.	mg/L
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You must complete and sign the certification statements on the reverse side. 2000



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

January 30, 2014 Lab No. 14E-0118 Invoice No. 177747 Page 1 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 1/22/14, 8:47 A.M. WASTEWATER COMPOSITE, SP001, 1/22/14, 8:47 A.M. – 3:15 P.M. WASTEWATER GRAB, SP003, 1/22/14, 9:14 A.M. WASTEWATER COMPOSITE, SP003, 1/22/14, 9:14 A.M. – 3:30 P.M. WASTEWATER COMPOSITE, SP005, 1/22/14, 9:10 A.M. – 3:30 P.M.

WASTEWATER GRAB, SP005, 1/22/14, 8:30 A.M.

WASTEWATER COMPOSITE, SP005, 1/22/14, 8:30 A.M. - 3:00 P.M.

Units: mg/L except as noted

Offits. hig/L except as noted								
ANALYTE	SP001	SP003	SP005	MQL	METHOD NUMBER	DATE OF ANALYSIS		
Biological Oxygen Demand (C)	60	105	87	5	5210 B	1/29/14		
Chemical Oxygen Demand (C)	200	233	179	10	5220 D	1/23/14		
Total Suspended Solids (C)	80	61	58	5	160.2	1/23/14		
pH (Std. pH Units) (G)	8.93	8.68	8.64		150.1	1/22/14		
Temperature, °C (G)	11.3	8.7	13.4	6-8 8. 6	170.1	1/22/14		
Oil & Grease (G)	ND	40	ND	5	1664	1/23/14		
Silver (C)	ND	0.17	ND	0.05	200.7	1/28/14		
Total Phenol (G)	0.026	0.031	0.048	0.005	420.4	1/24/14		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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JAN 3 1 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 January 30, 2014 Lab No. 14E-0118 Invoice No. 177747 Page 2 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 1/22/14, 8:40 A.M.

WASTEWATER COMPOSITE, SP007, 1/22/14, 8:40 A.M. - 3:10 P.M.

WASTEWATER GRAB, SP008, 1/22/14, 9:05 A.M.

WASTEWATER COMPOSITE, SP008, 1/22/14, 9:05 A.M. - 3:25 P.M.

WASTEWATER GRAB, SP009, 1/22/14, 8:55 A.M.

WASTEWATER COMPOSITE, SP009, 1/22/14, 8:55 A.M. - 3:20 P.M.

Units: mg/L except as noted

Units. hig/L except as noted								
ANALYTE	SP007	SP008	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS		
Biological Oxygen Demand (C)	78	371	660	5.	5210 B	1/29/14		
Chemical Oxygen Demand (C)	163	622	955	10	5220 D	1/23/14		
Total Suspended Solids (C)	73	. 286	240	5	160.2	. 1/23/14		
pH (Std. pH Units) (G)	8.92	8.95	8.27		150.1	1/22/14		
Temperature, °C (G)	11.9	9.4	16.9		170.1	1/22/14		
Oil & Grease (G)	ND	23	17	5	1664	1/23/14		
Silver (C)	ND.	ND	ND	0.05	200.7	1/28/14		
Total Phenol (G)	0.047	0.027	0.097	0.005	420.4	1/24/14		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

SR/gkg

Steve Root, Manager Environmental Testing







WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

January 27, 2014 Lab No. 14E-0150 Invoice No. 177913 Page 1 of 1

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP006, 1/27/14, 9:40 A.M. WASTEWATER COMPOSITE, SP006, 1/27/14, 9:40 A.M. – 3:40 P.M.

Units: mg/L except as noted

		. Ingre CX	1				
ANALYTE	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS			
Biological Oxygen Demand (C)	ND	5	5210 B	2/3/14			
Chemical Oxygen Demand (C)	13	10	5220 Ď	1/29/14			
Total Suspended Solids (C)	9	5	160.2	1/28/14			
pH (Std. pH Units) (G)	8.92		150.1	1/27/14			
Temperature, °C (G)	3.2		170.1	1/27/14			
Oil & Grease (G)	16	5	1664	1/28/14			
Silver (C)	ND	0.05	200.7	1/28/14			
Total Phenol (G)	0.151	0.02	420.4	1/30/14			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

SR/gkg

Steve Root, Manager **Environmental Testing**





INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

ſ	В	DISCHARGE MONITORING REPORT CERTIFICATION	
		All permittees must sign and complete the information below:	
		I certify under penalty of Law that this document and all attachments were prepared under a system designed to assure that qualified personnel properly gather and evaluate the infor person or persons who manage the system, or those persons directly responsible for gather is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that the information, including the possibility of fine and imprisonment for knowing violations.	mation submitted. Based on my inquiry of the ring the information, the information submitted
		Print or type name of signing official. Livi Isringhausen	•
		Title: Environmental Corapliance Manager Telephone:	314-362-6735
-		SignatureDate:	1/30/14
<u>_</u>			

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DIVISION OF ENVIRONMENTAL COMPLIANCE

METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I:	IDENTIFYING INFORMATION		
Company Name	: Washington University Medical School		
Permit No:	1024-3530-00		
Premise Addres	s: 660 South Euclid, St. Louis, MO 63110		
Reporting Perio	p] (APR-JUN) [(JUL-SEP)	X (OCT-DEC)
PART Π:	RECORD OF DISPOSAL OF RADIO	ACTIVE MATERIALS TO THE SEWER	
	RADIONUCLIDE	ACTIVITY DISCHARGED (millicuries)	
C-14			0.1000
H-3			5.0079
I-125			0.0257
P-32			0.0923
S-35			0.0643
	TOTAL ACTIVITY DISCHARGED:	·	5.2902
Everyone mus A. CERT	CERTIFICATION STATEMENTS ials in the box under Item A. ist complete the information under Items A CIFICATION OF COMPLIANCE WITH S	TATE AND FEDERAL REGULATIONS	
gove	tify that to the best of my knowledge & belief, a crining disposal by release into sanitary sewage fouri Department of Health, respectively, have be	all requirements of 10 CFR Part 20.2003 and 19 Cor material regulated by the Nuclear Regulatory Coeen met for the period covered by this report.	Commission and the
I certify under p system designed the person or pe submitted is to	I to assure that qualified personnel properly gatersons who manage the system, or those persons	nents were prepared under my direct supervision in ther and evaluate the information submitted. Based is directly responsible for gathering the information rate, and complete. I am aware that there are signi-	d on my inquiry of n, the information
Print/Type name	e of signing official: Karla Spafford	7	
Title: Radiation	Safety Specialist	Telephone: (314) 362-4968	
Signature:	la) All	Date: 01/15/2014	RE: radrpt.doc 2/00

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JAN 17 2014

DIVISION OF ENVIRONMENTAL COMPLIANCE



Metropolitan Saint Louis Sewer District 2350 Market Street Saint Louis, Missouri 63103-2555

WASHINGTON UNIVERSITY MEDICAL SCHOOL 660 S. Euclid Ave. St. Louis, MO 63110

Attn: Livi Isringhausen

Environmental Compliance Manager

INDUSTRIAL WASTEWATER DISCHARGE PERMIT NUMBER 1024353000.

ANNUAL PERMIT FEE NOTICE

For permits in effect as of 10/01/2013.

Fee will be included on the next regular monthly bill from the Metropolitan St. Louis Sewer District.

Explanation of Charges

Fee for Pretreatment Program Discharge Permit covering the period October 1, 2013 through September 30, 2014 issued in accordance with the Metropolitan St. Louis District Ordinance #12413 for the location at **660 S. Euclid Ave**.

Base charge @ \$150.00 per permit Volume charge @ \$0.72 per average daily Ccf Sample Point Charge @ \$100.00 per sample point

647.84 Ccf(s)

\$150.00 \$466.44

7 Point(s)

\$700.00

Total Fee Due:

\$1,316.44

For inquiries about the Annual Permit Fee, please call 314-436-8756. For inquiries about payment of the fee, which will appear on your upcoming monthly bill, please call 1-866-281-5737.

THIS IS NOT A BILL DO NOT PAY NOW

FEE WILL BE INCLUDED ON MONTHLY BILL

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Effective:

1/1/2013

Expiration:

12/31/2017

Premise Address: Monitoring Period: 660 South Euclid Ave., St. Louis, MO, 63110 2013

(Oct-Dec)

Samples Collected By:

(Jan-Mar)

(Apr-June)

(July-Sept)

Analysis Performed By:

St. Louis Testing Laboratories St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

					-				
MSD Sample Point Reference Numb	er	,	001.		. 003		005		,
Dates on Which Samples Were Colle	cted	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached		***************************************
Times at Which Samples Were Colle	ctod	G:	See attached	G:	See attached	G:	See attached		at Citizana de la Cita
Times at which Samples were Collected			See attached	<u>[C:</u>	See attached	<u>[C:</u>	See attached	<u> </u>	T
			Record Sample						
PARAMETER	LIMIT		G=grab, C-comp	osite,	M=measured flo	w, E=	estimated flow		Units
Flow	***	E	14,500	E	64,500	E	340,000		Gal/Day
Biological Oxygen Demand	****	C	See attached	С	See attached	С	See attached		mg/L
Chemical Oxygen Demand	****	C	See attached	C	See attached	С	See attached	·	mg/L
Total Suspended Solids	****	C	See attached	С	See attached	С	See attached		mg/L
pH .	5.5 - 11.5	G	See attached	G	See attached	G	See attached	:	pН
Oil & Grease	200	G	See attached	G	See attached	G	See attached	-	mg/L
Temperature	60	G	See attached	G	See attached	G	See attached		Celcius
Silver	0.5	C	See attached	C	See attached	С	See attached		mg/L
Total Phenol	7	G	See attached	G	See attached	G	See attached		mg/L
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You must complete and sign the certification statements on the reverse side.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2013

(Jan-Mar)

(Apr-June)

(July-Sept)

√ (Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number			006		007		008		009	**************************************	
Dates on Which Samples Were Collec			See attached	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached		
Times at Which Samples Were Collec	ted	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached	G: C:	See attached See attached		
	-	Record Sample Types (G,C,M, or E) And Results Below									
PARAMETER	LIMIT	G=gi	grab, C-composite, M=measured flow, E=estimated flow								
Flow	***	E	950	E	23,500		131,850	<u></u>	131,850	Gal/Day	
Biological Oxygen Demand	****	С	See attached	С	See attached		See attached		See attached	mg/L	
Chemical Oxygen Demand	****	C	See attached	С	See attached		See attached		See attached	mg/L .	
Total Suspended Solids	***	C.	See attached	C	See attached		See attached	<u> </u>	See attached	mg/L	
pH	5.5 - 11.5	G	See attached	G	See attached		See attached		See attached	рН	
Oil & Grease	200	G	See attached	G	See attached	,	See attached		See attached	mg/L	
Temperature	60	G	See attached	G	See attached		See attached		See attached	Celcius	
Silver	0.5	С	See attached	С	See attached		See attached		See attached	mg/L	
Total Phenol	7	G	See attached	G	See attached	G:	See attached	G:	See attached	mg/L	
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You must complete and sign the certification statements on the reverse side.

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2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

November 5, 2013 Lab No. 13E-2100 Invoice No. 174253 Page 1 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 10/28/13, 9:23 A.M.

WASTEWATER GRAB, SP001, 10/26/13, 9.23 A.M.
WASTEWATER COMPOSITE, SP001, 10/28/13, 9:23 A.M. – 3:06 P.M.
WASTEWATER GRAB, SP003, 10/28/13, 9:30 A.M.
WASTEWATER COMPOSITE, SP003, 10/28/13, 9:30 A.M. – 3:20 P.M.
WASTEWATER GRAB, SP005, 10/28/13, 9:11 A.M.
WASTEWATER COMPOSITE, SP005, 10/28/13, 9:02 A.M.
WASTEWATER COMPOSITE, SP006, 10/28/13, 9:02 A.M.

WASTEWATER COMPOSITE, SP006, 10/28/13, 9:02 A.M. - 3:27 P.M.

Units: mg/L except as noted

ANALYTE	SP001	SP003	SP005	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	36	,81	105	121	5	5210 B	11/4/13
Chemical Oxygen Demand (C)	113	242	263	212	10	5220 D	10/30/13
Total Suspended Solids (C)	65	136	105	27	5	160.2	10/29/13
pH (Std. pH Units) (G)	8.17	8.50	8.03	8.60		150.1	10/28/13
Temperature, °C (G)	21.1	19.5	22.7	18.2		170.1	10/28/13
Oil & Grease (G)	5	7	10	ND .	. 5	1664	10/28/13
Silver (C)	ND	ND	ND	ND	0.05	200.7	10/30/13
Total Phenol (G)	0.011	0.011	0.586	ND	0.005	420.4	10/30/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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AN OFFICIAL COPY OF TEST REPORT WILL BE PHOVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LABORATORIES, INC.
SEE REVERSE FOR CONDITIONS

DIVISION OF ENVIRONMENTAL COMPLIANCE





WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

November 5, 2013 Lab No. 13E-2100 Invoice No. 174253 Page 2 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 10/28/13, 9:18 A.M. WASTEWATER COMPOSITE, SP007, 10/28/13, 9:18 A.M. – 3:02 P.M.

WASTEWATER GRAB, SP008, 10/28/13, 9:45 A.M. WASTEWATER COMPOSITE, SP008, 10/28/13, 9:45 A.M. – 3:14 P.M.

WASTEWATER GRAB, SP009, 10/28/13, 9:40 A.M.

WASTEWATER COMPOSITE, SP009, 10/28/13, 9:40 A.M. - 3:11 P.M.

Units: mg/L except as noted

Omis. High except as noted									
ANALYTE	SP007	SP008	SP009	MQL,	METHOD NUMBER	DATE OF ANALYSIS			
Biological Oxygen Demand (C)	41 .	620	86	5	5210 B	11/4/13			
Chemical Oxygen Demand (C)	90	980	202	10	5220 D	10/30/13			
Total Suspended Solids (C)	69	379	153	5	160.2	10/29/13			
pH (Std. pH Units) (G)	8.50	7.96	8.31	****	150.1	10/28/13			
Temperature, °C (G)	21.4	22.5	22.4		170.1	10/28/13			
Oil & Grease (G)	7	12	13	5	1664	10/28/13			
Silver (C)	ND	ND	ND .	0.05	200.7	10/30/13			
Total Phenol (G)	0.005	0.027	0.019	0.005	420.4	10/30/13			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

Steve Root, Manager **Environmental Testing**



AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LABORATORIES, INC.

SEE REVERSE FOR CONDITIONS

INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MOVITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Print or type name of signing official. Title: Environmental Compliance Manager Telephone: 314-362-6735 Signature Manager Telephone: Date: 116/13

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DIVISION OF ENVIRONMENTAL COMPLIANCE

of

METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I:	IDENTIF	YING INFORMATION	4		•	
Company Name:	Washingto	n University Medical Scho	ol			
Permit No:	10	024-3530-	-00			
Premise Address:	660 South	Euclid, St. Louis, MO 631	10			
Reporting Period:	2013	[] (JAN-MAR)		(APR-JUN)	X (JUL-SEP)	OCT-DEC)
PART II:	RECORE	OF DISPOSAL OF RA	ADIOA	CTIVE MATE	RIALS TO THE SEW	VER
<u></u>	RAD	IONUCLIDE		ACTIVIȚY D	ISCHARGED (millicu	ries)
C-14	7			67		0.5210
H-3						38.9650
1-125						0.1704
P-32						0.2533
S-35						0.0493
	TOTAL A	CTIVITY DISCHARGE	D:			39.9590
PART III: Place your initial Everyone must	ls in the box	CATION STATEMEN' c under Item A. the information under Item		& B and sign thi	s report.	
A. CERTIF	FICATION	OF COMPLIANCE WI	ITH ST.	ATE AND FED	ERAL REGULATIO	NS
govern	ing disposal	best of my knowledge & b by release into sanitary se ent of Health, respectively,	wage for	material regulate	ed by the Nuclear Regul	atory Commission and the
B. RADIO	ACTIVE N	MATERIALS DISCHAR	RGE RE	PORT CERTIF	ICATION	
system designed to the person or person submitted is to the	o assure that sons who ma e best of my	that this document and all at qualified personnel prope mage the system, or those particularly knowledge and belief, true including the possibility of	erly gathe persons c e, accura	er and evaluate the lirectly responsib- te, and complete.	e information submitted le for gathering the info I am aware that there ar	. Based on my inquiry of rmation, the information
Print/Type name of	of signing of	ficial: Karla Spafford		***************************************		
Title: Radiation Sa	afety Specia	list		Telephone	e: <u>(314)</u> 362-4968	

Date: 10/17/2013

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RE: radrpt.doc 2/00

OCT 18 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



1024-3530-00

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 September 3, 2013 Lab No. 13E-1674 Invoice No. 171251 Page 1 of 2

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRABS, SP001, 8/27/13, 10:52 A.M.

SP003, 8/27/13, 11:00 A.M. SP005, 8/27/13, 10:42 A.M SP006, 8/27/13, 11:29 A.M.

Units: μg/L (ppb) PESTICIDES

P3/E \PPO/							
ANALYTE	SP001	SP003	SP005	SP006	MQL.	TEST METHOD	DATE OF ANALYSIS
Aldrin	ND	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
Chlorodane	ND	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
Dieldrin	ND	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
gamma-BHC	ND	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
Heptachlor epoxide	ND	ND	ND	ND	0.05	3510C/ 8081B	8/29/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

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SEP 17 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



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SEE REVERSE FOR CONDITIONS.



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085 Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

September 3, 2013 Lab No. 13E-1674 Invoice No. 171251 Page 2 of 2

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRABS, SP007, 8/27/13, 10:47 A.M. SP008, 8/27/13, 11:10 A.M.

SP009, 8/27/13, 10:05 A.M.

Units: μg/L (ppb) PESTICIDES

Dillo. pg/c (ppb)	i condides					
ANALYTE	SP007	SP008	SP009	MQL	TEST METHOD	DATE OF ANALYSIS
Aldrin	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
Chlorodane	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
Dieldrin	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
gamma-BHC	ND	ND	ND	0.05	3510C/ 8081B	8/29/13
Heptachlor epoxide	ND _.	ND	ND	0.05	3510C/ 8081B	8/29/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Steve Root, Manager Environmental Testing

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AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LABORATORIES, INC.
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Washington University in St. Louis Environmental Health & Safety

To:

Washington University School of Medicine

Contingency Plan Holder

Date:

September 6, 2013

Please find attached the Washington University, School of Medicine, St. Louis, Missouri Contingency Plan, In the Event of a Hazardous Chemical or Biological Release Revision Date: September 2013

This plan has been provided to you for future reference in the event of your involvement with a hazardous chemical or biological agent release at the Washington University, School of Medicine Campus, location. Please keep this document in an easily accessible location for quick reference in the event of an emergency.

Please be advised that this updated plan includes revision of the campus map to include the new BJCIH building.

Should you have any questions regarding this plan, please feel free to contact:

WU Environmental Compliance Officer: Linda Vishino (314)935-7864 WU Environmental Compliance Manager: Livi Isringhausen (314)362-6735

Thank you in advance for your assistance in this matter.

Sincerely,

Livi Isringhausen

Washington University School of Medicine Environmental Compliance Manager

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Washington University in St. Louis, Campus Box 8229, 660 South Euclid, St. Louis, MO 63110 (314) 362-6735, Fax (314) 362-1095, isringhausenm@wusm.wustl.edu, http://ehs.wustl.edu/

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Washington University School of Medicine

Contingency Plan

In the event of a Hazardous Chemical or Biological Release



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Campus Box 8229 660 S. Euclid Avenue St. Louis, MO 63110 (314) 362-6816 Table of Contents

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Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release DIVISION OF 2 ENVIRONMENTAL COMPLIANCE This Contingency Plan has been developed for the Environmental Health & Safety program at the Washington University School of Medicine (WUSM) complex in St. Louis, Missouri. The Surplus Chemical and Hazardous Waste Management Program provides organized collection, storage and disposal services for chemicals and infectious materials from the many departments and principal investigators who administer the WUSM clinical, research and student laboratories. The Environmental Health & Safety program provides for laboratory safety and regulatory compliance with safety and environmental issues.

The Contingency Plan outlines specific emergency response actions to be taken to safely respond to a spill or fire involving surplus chemicals, infectious materials or hazardous wastes; either during accumulation, use, handling, storage or disposal of these materials in the research laboratories or at the Hazardous Materials Management Building (HMMB) at WUSM. The plan lists the telephone numbers of emergency coordinators, facility contacts, local fire and police departments, ambulance services and medical personnel who will provide assistance to WUSM in an emergency. Evacuation plans, depending upon the nature and location of the emergency, are included. Emergency equipment availability and locations are also described in the Contingency Plan.

If an emergency develops, the person making the discovery is instructed to contact the Environmental Health & Safety office at 362-6816 or WUSM Protective Services at 362-HELP, who will then contact the Emergency Coordinator using the "Spill Beeper" telephone number. A list of campus staff who are to be notified in the case of an emergency is included (Figure I). The Radiation Safety program, Fire Safety program, and Disaster Plan are included by reference. If conflicting statements occur, the Contingency Plan or the more stringent requirements take precedent.

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Figure I

EMERGENCY COORDINATORS

In the event of an ERL 2 (<u>intermediate</u> or <u>large</u> release) contact Washington University School of Medicine Protective Services at (314) 362-2698 or (314) 362-HELP(4357). WUSM Protective Services should contact the following responders in the order below and then the emergency response phone at (314) 790-5317.

- (I) Primary contact Washington University School of Medicine Protective Services (314) 362-2698 or (314) 362-HELP(4357)
- (2) Second Contact Linda Vishino Environmental Compliance Officer

Office phone: (314) 935-7864 Cell phone: (314) 713-4800 Home phone (314) 660-0085

Office Address

ddress Home Address

7509 Forsyth Blvd, Suite I30

3364 Moselle Union, MO 63084

St. Louis, MO 63105

Environmental Health and Safety Office

(3) Third Contact -Livi Isringhausen -Environmetnal Compliance Manager - Medical School Office phone: (314) 362-6735 Cell phone: (314) 713-3901 Home phone (618) 410-6140

Office Address

660 South Euclid

St. Louis, MO 63110

Home Address

I Bluff Drive

Belleville, IL 62223

(4) Fourth Contact - Bruce Backus- Assistant Vice Chancellor Environmental Health and Safety Office phone: (314) 935-9882 Cell phone: (314) 302-0466 Home phone (314) 909-9965

Office Address

7509 Forsyth Blvd, Suite 130

St. Louis, MO 63105

Environmental Health and Safety Office

<u>Home Address</u> 446 Greenleaf Drive

Kirkwood, MO 63122

(5) Fifth Contact- Donna Hall -Environmetnal Compliance Manager – Danforth Campus Office phone: (314) 935-4650 Cell phone: (314) 713-4160 Home phone (314) 344-8195

Office Address

I Brookings Drive

Millbrook Facilities Building

St. Louis, MO 63130

Home Address

12058 Glenrose Drive

Maryland Heights, MO 63043

WUMS ADMINISTRATION

Facilities Management Office

Melissa Hopkins

Director, Facilities Management

(314) 362-4970

Business Address

Room II8, Mc Donnell Bldg.

Public Relations Office

Don Clayton, Assoc. Vice Chancellor

for Medical Affairs (314) 362-8258

Business Address

4444 Forest Parkway

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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Figure I (continued)

EMERGENCY CONTACT NUMBERS

WUSM Protective Services	(314)362-4357		
(Will notify emergency agencies)			
Ambulance Service	(314)362-4357		
Barnes Care	(314) 747-5800		
Barnes Emergency Room	(314) 362-9123		
Eye Clinic	(314) 362-3937	(emergency direct line)	
Environmental Health & Safety	362-6816	PAGER: 836-2877	
Radiation Safety	PAGER: 826-34	40	
St. Louis Fire Department	(314)362-4357		
St. Louis Police Department	(314)362-4357		
St. Louis Health Department	(314) 612-5150	Pamela Rice Walker,	
MPA Director of Health , Melba R. Moore, MS 1	Health Commissioner		
St. Louis Metropolitan Sewer District (MSD)	(314) 728-6200 or		
MSD Emergency Hotline	768-6260		
St. Louis Air Pollution Control	(314) 613-7300		
LEPC	500.000.0000.000.0000.0000000000000000		
Local Emergency Planning Committee	(314) 534-2244		
National Response Center	I-800-424-8802		
MDNR Environmental Emergencies	(573) 634-2436		
US EPA Region VII	(913) 236-3778	,	
CHEMTREC	I-800-424-9300		
Debbie Mays, BJH Disaster Planning	(314) 454-2606	PAGER 790-7968	
BJH Protective Services	(314) 362-0911		
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DIVISION OF ENVIRONMENTAL COMPLIANCE

GENERAL DESCRIPTION OF THE FACILITY

Identification, Location

Facility Name: Washington University School of Medicine

Owner/Operator/Agent:
Larry J Shapiro, Dean, Executive Vice Chancellor
Room 1800, 1st Floor North Blg., Box 8003
Washington University School of Medicine
660 S. Euclid Ave.
St. Louis, MO 63110
Phone: (314) 362-6827

Physical Address:
Washington University School of Medicine (WUSM)
660 South Euclid Avenue
St. Louis, Missouri, 63110
County: St. Louis
Longitude: -90.26303
Latitude: 38.63454

Mailing Address:
Contact: Livi Isringhausen
Washington University School of Medicine
660 South Euclid Avenue, Box 8229
St. Louis, Missouri, 63110
Ph. (314) 362-6735
Fax (314) 362-1995

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Washington University School of Medicine
Contingency Plan: In the event of a hazardous chemical or biological release

Function of the Facility:

Washington University School of Medicine (WUSM) is an educational and biomedical research facility included in the Washington University Medical Center. The facility is a single site research institution, consisting of contiguous or adjacent buildings, including a Hazardous Materials Management Building (HMMB) for the short-term storage of hazardous, biological, and radioactive waste. Hazardous chemicals and biological materials are used in biomedical research and education within the medical facility. Some materials used in the clinical, research, and student laboratories are defined by the Missouri Department of Natural Resources and the US EPA as infectious materials and RCRA hazardous waste. About 1,700 individual laboratories participate in the Environmental Health & Safety program. In addition, the university owns and operates an onsite power generation plant and several emergency power generators. These power generation units are fueled by four underground storage tanks and seventeen aboveground storage tanks. The storage tank locations are listed in the Washington University School of Medicine SPCC plan.

Used chemicals and equipment are managed as part of a WUSM hazardous waste management program. The University adopted the RCRA Subpart k regulations (EPA lab Rule) July I, 2013. All potentional hazardous wastes generated in the l;aboratories will be labeled "Unwanted Material" and managed according to the WUSM Laboratory Management Plan. Following the receipt of a laboratory pick-up request which describes the regulated material in detail, in-house collection and relocation is arranged to a centralized storage facility, located at the northeast end of the WUSM complex at 4500 Parkview (corner of Duncan and Taylor), St. Louis, Missouri, 63110. Infectious materials are containerized at the point of generation in DOT approved containers, sealed and shipped offsite to Stericycle for subsequent disposal by incineration.

In the HMMB, a technician determines whether a surplus chemical can be reclaimed and/or reused by other laboratories, or whether it must be designated a hazardous waste with ultimate disposal off-site at a permanent hazardous waste disposal facility.

The HMMB and campus laboratories have been designed for safe storage and handling of potentially hazardous materials. Fire protection and separation of incompatible materials according to DOT, US EPA, and OSHA classifications are provided throughout WUSM. WUSM meets all applicable National Fire Protection Association (NFPA) and City of St. Louis building code requirements.

Note: See Attachment I for a map of the Washington University Medical Center.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

TYPES OF POTENTIAL EMERGENCIES

There are two levels of emergency response, emergency response level I(ERLI) and emergency response level 2 (ERL2). ERLI is a spill of hazardous or biological material whose containment and/or remediation is within the capabilities of the in-house EH&S spill response team. An ERLI incident is one where there is little or no immediate danger to human health and the environment. An ERL2 is an incident that requires emergency response by emergency response agencies outside the university.

ERLI

A determination of the emergency response level is a judgement made by the initial EH&S responder. In general ERLI is not an emergency response but a spill cleanup and remediation that can be handled by three people or less. ERLI responses may be the initial response or post ERL2 response. The following are potential ERLI incidents:

Small fire

Small fire is defined as a fire contained within a trash receptacle, waste paper basket or other small container that can be extinguished using a small hand-held fire extinguisher by the occupant of the laboratory or office. It is probably small enough that the smoke detector would not sound and the fire would not be reported until after it was extinguished.

Small hazardous chemical or biological release

In general, chemical spills which are small in quantity (up to 55 gallons), that have minimal potential impact on surroundings and which do not involve fire or injuries are most likely to occur in either the research areas or the HMMB. In addition, small biological material releases are considered to be a few milliliters or less of a viable microorganism in a biological cabinet in a restricted area that can be remediated with bleach by the technician observing the spill.

ERL2

An ERL2 usually involves a fire, hazardous gas release, extremely dangerous chemical release, or a chemical or biological spill that is out of control or exceeds the capabilities of the in-house EH&S staff. The following are potential ERL2 incidents:

Intermediate hazardous biological or chemical release

The intermediate chemical release will consist of spills greater than one 55 gallon drum, spills involving a small fire (confined to a single laboratory or work area) or injuries resulting from a chemical release. An intermediate biological material release will consist of a release outside the biological cabinet of a few milliliters of viable microorganism that results in the exposure of the individual(s) in the restricted laboratory to the toxic agent. However, the release is confined to the restricted laboratory or work area. If it is determined by the initial EH&S responder that this can be appropriately handled by EH&S, this may be downgraded to an ERLI.

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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Large hazardous biological or chemical release

This is a chemical release with fire and/or injuries that involves more than one laboratory or work area, a floor of a building or a complete building. An intermediate (see above) type of release that is out of control would probably develop into an ERL2 incident. An ERL2 release of hazardous biological material is defined as the release of viable biological agents from the restricted facility in a manner that results in the exposure or possible exposure of other occupants of the floor or building.

Eminently dangerous situation

The EH&S initial responder will declare an ERL2 and call Protective Services (362-HELP) and request the St. Louis Fire Department if ANY of the following conditions are met:

- An un-extinguished fire of any size
- A spill of a flammable chemical:

If 10% of the LEL is exceeded

Greater than I gallon of a flammable with an NFPA flammability rating of 3 or 4 in any area Greater than 0.5 gallon of a flammable with an NFPA flammability rating of 3 or 4 in an unventilated area If any volume is at risk of coming into contact with an ignition source or incompatible compound

A release of a toxic chemical:

If 10% of IDLH is reached

If the compound has a PEL/TLV of 10 ppm or less

■ A release of a reactive chemical:

If it has an NFPA reactivity rating of 4.

If there is a risk of contact with incompatible chemicals or incompatible physical hazards

■ A release of a corrosive chemical:

Of more than I gallon

A release of any amount of the following compounds:

HF (Hydrogen Fluoride Gas)

Phosgene

Mustard Gas

Any Zone A Inhalation Hazard

Major disaster

Major disaster is defined as resulting from an earthquake, tornado or explosion, in which several buildings have either structural damage or major fire and hazardous biological or chemical releases that result from the disaster. Refer to the university Disaster Plan for further information.

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BUILDING SPECIFIC HAZARD INFORMATION

The emergency coordinator on the scene will be trained and have access to building specific hazard information. If the St. Louis Fire Department or other outside agency is involved in the incident, the emergency coordinator will serve as a consultant in this area. Facilities Management personnel will provide floor plans and building specific information to the emergency coordinator and responding agencies.

IMPLEMENTATION OF THE CONTINGENCY PLAN

The Contingency Plan will be implemented during or following an ERL2 incident and at the discretion of the Emergency Response Coordinator in the following conditions:

Fire and/or Explosions

A fire causes the release of toxic fumes.

The fire spreads and could possibly ignite materials at other locations on site or could cause heat-induced explosions.

The fire could possibly spread to off-site areas.

Use of water or water and chemical fire suppressant could result in contaminated runoff.

An imminent danger exists that an explosion could occur, causing a safety hazard because of flying fragments or shock waves.

An imminent danger exists that an explosion could ignite other hazardous materials at the facility.

An imminent danger exists that an explosion could result in release of toxic material.

An explosion has occurred.

Spills or Material Releases

The spill could result in release of flammable liquids or vapors, thus causing a fire or gas explosion hazard (see eminently dangerous situation above).

The spill could cause the release of viable microorganisms, toxic liquids or fumes (see eminently dangerous situation above).

The spill can be contained on site, but the potential exists for ground water contamination or airborne exposure to hazardous chemical or infectious agents.

The spill cannot be contained on site, resulting in off-site soil contamination and/or ground or surface water pollution and/or airborne exposure to infectious agents.

RECEIVE Severe Weather Damage or Earthquake

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If weather damage results in a material release, then see *spills or materials releases* above.

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

If fire and/or explosion is a secondary consequence, then see fire and/or explosions above.

APPLICATION OF THE CONTINGENCY PLAN TO OTHER MEMBERS OF THE MEDICAL CENTER

Barnes-Jewish Hospital, and St. Louis Children's Hospital are included in this contingency plan. The School of Medicine has laboratories and hazardous biological and chemical materials in buildings owned and/or operated by these institutions. Details of the actions to be implemented are identified in Appendix 2.

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SUMMARY OF THE DUTIES OF THE EMERGENCY RESPONSE COORDINATORS

General

Telephone numbers of the primary Emergency Response Coordinator and alternates are listed in the Contingency Plan (Figure I) and are posted in the HMMB, the Environmental Health & Safety office and at the Protective Services Command Post.

The coordinators will have a good working knowledge of locations of extremely hazardous materials or large volumes (over 55 gallons) of flammable liquids and gases.

The primary Emergency Response Coordinator or ranking secondary coordinator will decide if the Contingency Plan should be implemented during an emergency unless the existence of fire or injuries require the immediate contact of the emergency response agencies. If there is a fire, or if there are injuries, WUSM Protective Services will call 911 and report the emergency.

The coordinator on call will have full responsibility for coordination of all actions during an emergency, including but not limited to, control of the release, remedial actions, evacuations, notifications and reports unless the Contingency Plan has been activated and the fire department summoned. In the event that the fire department has been summoned, the Fire Department Hazmat Team will assume responsibility and the Emergency Response Coordinator(s) will serve as technical advisers to the incident commander.

The ranking secondary Emergency Response Coordinator shall act as the primary Emergency Response Coordinator in the absence of the primary coordinator.

If the emergency requires 911 activation, an Emergency Response Coordinator and Protective Services Officer shall meet the Hazmat Team of the fire department at the entrance to the affected building. The Emergency Response Coordinator shall accompany the fire department Hazmat Team to the location of the emergency to provide technical information regarding the nature of the biological or chemical release. The Protective Services Officer will remain at the entrance to the facility to provide Protective Services and radio contact for those at the scene. The Building Services Department shall send maintenance staff to the location of the Protective Services Officer to assist by deactivating or reactivating building systems as required.

Small Fire (ERLI)

The Emergency Response Coordinator shall be called by the Protective Services Officer at the Command Post.

The Emergency Response Coordinator shall determine if there was chemical involvement in the fire and shall investigate the origin of the fire and assess any damage, biological or chemical material releases that may have resulted.

The Emergency Response coordinator shall provide a written report of the incident on the form provided.

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Small Chemical or Biological Release (ERLI)

The coordinator on call will evaluate the release and related hazards and using his/her best judgement, will decide if the emergency requires implementation of the Contingency Plan.

Using the necessary personal protective equipment and spill cleanup equipment, the coordinator will contain the spill and effect cleanup.

The coordinator will act to limit the impact of the release on the environment.

The coordinator will relocate spilled materials and contaminated materials used to remediate the spill to the HMMB.

The coordinator will attempt to keep released incompatible materials separated during the entire cleanup period and preparation for disposal.

The coordinator will advise Custodial Services staff that the area is safe and that routine cleaning activities may resume.

The coordinator will make any necessary notifications as required by statue or regulation.

The coordinator will enlist the assistance of Protective Services, Custodial Services or Building Services staff as necessary. He/she shall provide direction for their activities and ensure their safety.

All emergency equipment and remediation equipment will be returned to active status under supervision of the coordinator.

Intermediate Chemical or Biological Release (ERL2)

The coordinator on call, using his/her best judgement, will evaluate the release and the related hazards.

If there is no fire and there are no injuries, but based upon the coordinator's knowledge of the high hazard areas within the School of Medicine, there are sufficient hazards that injuries may result, the coordinator will request Protective Services to contact the secondary emergency response coordinator and the emergency response agencies for assistance.

The primary coordinator will direct the secondary coordinators in remediating the release. If the emergency response agencies were summoned, the Hazmat Team of the St. Louis Fire Department will serve as incident commander. The coordinator will serve as a technical adviser to the incident commander.

The coordinators will act to limit the impact of the release on the environment.

The coordinators, using the necessary protective equipment will contain the spilled chemicals using the necessary materials from the emergency response carts.

The coordinators will relocate spilled materials and contaminated materials used to remediate the spill to the HMMB and prepare them for disposal.

The coordinators will attempt to keep released incompatible materials separated during the entire cleanup SEP 0 9 2013

Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release DIVISION OF 13 ENVIRONMENTAL COMPLIANCE period.

The Primary Coordinator will advise the Custodial Services staff that the area is safe and that routine cleaning activities may resume.

The Primary Coordinator will notify the Chief Facilities Officer of the release and notify local, state, and federal agencies including the National Response Center that the Contingency Plan was implemented. All required information will be provided in a timely manner.

The Primary Coordinator will enlist the assistance of Protective Services, Custodial Services and Building Services as needed. He/she shall provide direction for their activities and ensure their safety. In the event that the St. Louis City Emergency Response Agencies were summoned, the primary coordinator, the Protective Services Officer and a representative of Building Services will meet the St. Louis Fire Department Hazmat Team at the entrance to the affected building. The Emergency Response Coordinator will accompany the fire department hazmat team to the site of the incident and will provide technical information regarding the hazards associated with the materials that were released. The Protective Services Officer will remain at the entrance to the building for crowd control and communications. The Building Services Department representative shall remain with the Protective Services Officer and shall, at the request of the Emergency Response Coordinator or the Hazmat Team, activate or deactivate any equipment or services requested.

Using his/her best judgement, the Primary Coordinator shall decide if the emergency should be upgraded to a Large Chemical or Biological Release. He/she shall require evacuation of the area, building and adjacent buildings as deemed necessary. He/she shall instruct Building Services staff to deactivate or reactivate mechanical systems as deemed necessary to control the release, to remediate the emergency, to protect staff and visitors including those in adjacent buildings or off-site, and to protect the environment.

If necessary, the Primary Coordinator, Chief Facilities Officer or ranking secondary coordinator shall contact the private contractor, under contract to the University, to effect a cleanup of the released chemicals in the area.

All equipment shall be returned to active status under the supervision of the coordinator.

The primary coordinator, with assistance from the secondary coordinators, shall prepare a report including an evaluation of the emergency, its cause, its prevention, and the School of Medicine response efforts. He/she may enlist other qualified individuals to assist in the evaluation.

Large Chemical or Biological Release or Eminently Dangerous Situation (ERL2)

The Hazmat Team of the emergency response agencies will establish a command post. The primary coordinator will serve as a technical adviser to the incident commander.

Secondary coordinators will don protective equipment and assist the emergency response agencies and ensure that the response agencies are protected from chemical and biological exposures.

The coordinators shall act to limit the impact of the incident on the environment.

The coordinators will attempt to keep released incompatible materials separated during the entire clean up period (42)

The primary coordinator, or ranking secondary coordinator will contact the private contractor under contract to the University to assist with the cleanup.

The primary coordinator will notify all required local, state, and federal agencies including the National Response Center and provide all required information in a timely manner.

The primary coordinator shall enlist Protective Services, Custodial Services and Building Services to assist in the emergency as Services and Protective Services shall remain at the designated staging area assigned by the incident commander until called for active duty.

The primary coordinator, at his/her discretion, shall require evacuation of additional buildings, other institutions or residents near the site who may become exposed to hazardous releases.

The primary coordinator shall instruct the Public Relations staff regarding the extent of the problem and necessary information that should be released. Public Relations shall meet the media at the area designated by the incident commander or the primary emergency response coordinator.

The primary coordinator shall ensure that spilled and contaminated materials will either be relocated to the HIMMB or properly disposed by a private contractor.

The primary coordinator shall ensure that all equipment is returned to active service.

The primary coordinator, with assistance from the secondary coordinators, shall prepare a report including an evaluation of the emergency, its cause, its prevention and the response of the School of Medicine. He/she may enlist other qualified individuals to assist in the evaluation.

Major Disaster (ERL2)

During a major disaster such as a major earthquake or severe tornado, it is assumed that the Emergency Response Coordinators will not be available to respond for hours or perhaps days following the disaster if they are not on site at the time of the emergency.

Responses during a major disaster shall be covered in the Washington University Disaster Plan.

Under "Types of Potential Emergencies" of this document, the relative biological and chemical risk to first responders in each building during an intermediate emergency, worst case emergency or major disaster have been identified for use by Emergency Response Coordinators, St. Louis Fire Department Hazmat or other responders.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

SUMMARY OF THE DUTIES OF WUSM PROTECTIVE SERVICES

Small Fire (ERLI)

Receive notification that a small fire exists.

Respond to the area and assist the investigator as needed in extinguishing the fire.

Report the fire to the primary or ranking secondary emergency response coordinator.

Upgrade the situation and contact 9II if the fire cannot be extinguished with a single fire extinguisher.

Small Chemical or Biological Release (ERLI)

Receive notification that a release has occurred.

Determine the location of the release.

Determine if there is a fire or if there are injuries. If so, this is an intermediate emergency.

Notify the Primary Emergency Response Coordinator if there is not a fire or there are no injuries.

Notify the responsible Protective Services force (WUSM, Barnes Hospital, St. Louis Children's Hospital, or Jewish Hospital) to dispatch an officer to secure the area and meet the Emergency Response Coordinator.

Assist the coordinator as directed.

Record the time and location of the release, the call to the coordinator and the time of his/her arrival. Prepare standard reports as dictated by Protective Services standard operating procedures.

Direct inquiries from the media or the public to Medical Public Relations.

Intermediate Chemical or Biological Release (ERL2)

In School of Medicine buildings:

- (I) Receive notification that an intermediate emergency exists.
- (2) Determine the location of the fire or injuries,
- (3) Notify emergency response agencies at 911. Advise the emergency response agencies of the specific location using Protective Services standard procedures.

Notify emergency response agencies at 9II if the primary coordinator determines that a release or impending release of hazardous chemical or biological material constitutes an intermediate emergency.

Using figure Notify all Emergency Response Coordinators. Dispatch officers in pairs to conduct a limited evacuation of the area involved in the emergency. At no time should the officers conducting the evacuation enter the affected area, inhale the vapors or smoke, and/or touch the solid or liquid materials.

Dispatch officers to meet the responding agency and Emergency Response Coordinator(s) at the appointed location and escort them to the area involved in the emergency.

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Ensure that all injured Washington University staff and visitors are taken to the Barnes Hospital Emergency Room-for treatment. The affiliated institutions shall make arrangements for affected staff and visitors.

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Assist the primary coordinator, ranking secondary coordinator (or emergency responding agencies) as directed.

Record the time and location of the release, the call to the emergency response agency, the call to the coordinators, and the time of their arrival. Do not prepare reports or talk to the public or media.

Large Chemical or Biological Release or Eminently Dangerous Situation (ERL2)

Receive notification that a release has occurred.

Determine the location of the emergency.

Determine if there is a fire or injury.

Notify the emergency response agencies at 911. Advise the emergency response agencies of the specific location.

Notify all Emergency Response Coordinators.

Dispatch officers in pairs to conduct a limited evacuation of the area involved in the emergency and adjacent areas.

Dispatch officers to meet the emergency responding agencies and Emergency Response Coordinator(s) at the appointed location and escort them to the area involved in the emergency. At no time should the officers conducting the evacuation enter the affected area, inhale the vapors or smoke, and/or touch the solid or liquid material.

Ensure that all injured persons are taken to the Barnes Hospital Emergency Room for treatment.

Assist the Primary Coordinator (or emergency responding agencies) as directed.

Record the time and location of the release, the call to the emergency response agency, the call to the coordinators, and the time of their arrival. Prepare standard reports as dictated by Protective Services standard operating procedures.

Direct inquiries from the media or the public to Medical Public Relations.

Response to Fire Alarms (ERLI or ERL2)

Respond to a telephone alarm as described above.

Respond to a pull station alarm as described for an intermediate or worst case emergency (ERL2).

Respond to a smoke detector alarm by verifying that an emergency exists. If an emergency exists follow above information.

Respond to a sprinkler system flow alarm as described for an intermediate or worst case emergency (ERL2).

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Major Disaster (ERL2)

During a major disaster such as a major earthquake or severe tornado, it is assumed that the Emergency Response Coordinators will not be available to respond for hours or perhaps days following the disaster if they are not on site at the time of the emergency.

Responses during a major disaster shall be covered in the Washington University Disaster Plan.

SUMMARY OF THE DUTIES OF PUBLIC RELATIONS

The Public Relations Department will serve as an interface with the media and the public before, during and following an emergency.

If time allows, prepared statements including evacuation notices and hazard information will be issued by the Public Relations Department.

Information that documents beneficial results from research using hazardous materials will be assembled and dispensed by the Public Relations Department.

If technical information is required, the Public Relations Department will arrange for qualified individuals to address the media in media staging areas.

The Public Relations Department or Protective Services shall escort the media to the staging area. Medical School auditoriums not threatened by the emergency will be used as media staging areas.

SUMMARY OF THE DUTIES OF BUILDING SERVICES AND CUSTODIAL SERVICES

Building Services and Custodial Services shall assist the Primary Emergency Coordinator as directed in controlling the release.

Building Services shall make available to the coordinator and the emergency response agencies information including, but not limited to:

- Sprinkler system shutoff valves.
- Gas valves.
- Electric disconnects.
- The volume of exhaust air from the affected area.
- The volume of supply air into the affected area.
- Details of air handling systems in adjacent or nearby buildings.

Building Services shall:

- Deactivate or activate mechanical systems.
- Provide mechanical closure to floor drains and other openings.
- Provide dikes or mechanical barriers to prevent lateral movement of liquids as directed by the ranking coordinator or Incident Commander.

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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Building Services shall obtain the services of heavy equipment owners and operators to prepare dikes, cleanup contaminated soil and other necessary functions as directed by the ranking coordinator or Incident Commander.

Building Services shall respond to all emergencies by posting a knowledgeable person or persons at the staging area or at the entrance to the affected facility with the Protective Services Officer to assist in building shutdowns as requested by the St. Louis Fire Department Hazmat Team or the ranking Emergency Response Coordinator.

LISTS OF EMERGENCY CONTACTS

The Primary Emergency Coordinator will be the first contacted and all alternates will be contacted in the designated order. In the absence of the Primary Emergency Coordinator the ranking Emergency Coordinator on site will be responsible for the Contingency Plan's implementation. All emergency coordinators will consider themselves "on call" at all times. Should an emergency develop, the emergency coordinator will immediately take the necessary steps to contain the problem. Concurrently, he/she will notify the Chief Facilities Officer, Mr. Walter Davis at 314-362-4970.

Figure I is a list of the telephone numbers of the emergency coordinators and the first response authorities such as fire and police departments, ambulance service, Barnes Hospital Emergency Room Service, state and local emergency response officers, Chemtrec, Gateway Hazardous Materials Emergency Response Network, and emergency response contractors who may be called upon to assist in an emergency response action.

Figure 2 (see below) is a list of faculty members who will act as expert consultants for chemical problems. These faculty members are listed by the St. Louis Section of the American Chemical Society in a published booklet entitled, "Answers to Chemical Questions." Faculty experts will be available for consultation with the Environmental Health & Safety office and Emergency Response Coordinators.

Figure 2

Faculty Consultants	Business Addresses		
I.			
Dr. Michael Welch, Professor	Washington University		
Department of Radiology	School of Medicine		
Campus Box 8225			
Business: (314) 362-8436	660 S. Euclid Avenue		
Home: (314) 991-5081	St. Louis, MO 63110		
2.			
Dr. Frederick Sweet, Professor	Washington University		
Obstetrics & Gynecology	School of Medicine		
Campus Box 8064			
Business:(314) 362-3174	660 S. Euclid Avenue		
Home: (314) 645-6529	St. Louis, MO 63110		

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Dr. John R. Bleeke, Asst. Prof. Washington University

Department of Chemistry

School of Medicine

Campus Box II34

Business: (314) 935-6809 Home: (314) 863-7278

660 S. Euclid Avenue St. Louis, MO 63110

4.

Dr. John S. Taylor, Professor Department of Chemistry

School of Medicine

Washington University

Campus Box II34

Business: (314) 935-672I

660 S. Euclid Avenue

Home: (314) 721-1129

St. Louis, MO 63110

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Contingency Plan: In the event of a hazardous chemical or biological release

RESPONSE ACTIONS IN WASHINGTON UNIVERSITY SCHOOL OF MEDICINE OWNED AND/OR OPERATED BUILDINGS

ERLI (Emergency that can be handled by in-house emergency responders)

Small fire

In the event of a small fire, i.e., trash can fire, the Protective Services Officer, office staff or laboratory staff will use the fire extinguisher to extinguish the fire. After the blaze has been extinguished, the Protective Services Command Post at 362-HELP should be contacted to report the incident.

The officer at the Command Post will determine the location of the small fire (building and room). He/she will notify the Primary Emergency Response Coordinator so that investigation can be made to ascertain if there are hazardous biological materials or chemicals involved, to determine the cause of the fire and to implement preventative measures. After hours, the officer at the Command Post shall contact the EH&S emergency pager (836-2877) and if needed use Figure I to contact the Emergency Response Coordinator.

The Emergency Response Coordinator will investigate the fire and determine if any hazardous biological or chemical materials were involved. If there were hazardous biological or chemical materials involved, he/she shall determine the nature of the hazard, ensure that there is no danger from additional exposure of workers and shall make the necessary reports to local, state and federal agencies as required by law or regulation. The coordinator will then prepare a written report including the cause of the fire, the corrective action taken and any recommendations or procedures necessary to prevent reoccurrence of the incident or similar incidents. If there are hazardous materials involved, the coordinator will see follow the procedures below.

Small hazardous chemical or biological release

In the event of a hazardous biological or chemical spill or accidental release the laboratory staff will contact the Washington University Environmental Health & Safety office at 362-6816 or the WUSM Protective Services Command Post at 362-HELP or 362-2698 to report the release. After normal working hours a hazardous material would be detected by the Protective Services Officer making his/her rounds and reported to the Command Post. Upon receipt of a hazardous material report, the following actions will be taken:

The officer at the Command Post will determine the location of the hazardous material release (building and room) and whether there is a fire, and/or injuries. If there is a fire, an eminently dangerous situation, or if there are injuries, the emergency should be treated as an intermediate or worst case release and will be remediated as described below. If there are no injuries or fire, the officer at the Command Post will contact the Emergency Response Coordinator using Figure I and apprise him/her of the release including building and room.

The Coordinator will check the areas for special hazards. If an area with a special hazard is involved, it will be declared an intermediate chemical release (see below).

The officer at the Protective Services Command Post shall dispatch trained officers.

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The officers dispatched to the area shall secure the area and ensure that there are no injuries while avoiding personal contact with spilled liquids, spilled solids or inhaling vapors.

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■ The officer dispatched to the scene shall permit laboratory staff who have experience in working with the chemicals to use the spill kits provided in the area to contain the spill until the emergency response coordinator arrives.

The Emergency Response Coordinator will remediate the spill using the spill kit located in the area or material from the mobile emergency supply areas. Additional containment materials are available from the storage areas within the HMMB.

After containment and cleanup, all contaminated materials will be removed and taken to the HMMB for disposal in accordance with all applicable laws and regulations.

The Emergency Response Coordinator will make any required notifications.

The Emergency Response Coordinator will complete a chemical incident report and file it with the Environmental Health & Safety office.

Custodial Services shall be instructed to cleanup the area after the hazards are removed.

ERL2 (Emergency that requires assistance from an agency outside the university)

Intermediate hazardous chemical or biological release

In the event of an intermediate hazardous biological or chemical material spill or release, the laboratory staff will contact the Washington University Environmental Health & Safety Office at 362-6816 or the Washington University School of Medicine Protective Services, at 362-4357. In the event that the accidental release occurs after normal working hours, it will be discovered by the officer making rounds and reported to the Protective Services. Upon receipt of the information that an intermediate hazardous material release has occurred, the lead officer at Protective Services will initiate the following actions:

Determine the location of the hazardous material release fire and/or injured person(s).

Call 9II and report the problem. The responding agency shall be directed to the specific location using standard notification procedures.

Dispatch an officer to meet the first responders.

Contact all of the Washington University Emergency Response Coordinators using the priority established in Table I of this contingency plan.

Dispatch officers in pairs to the affected area. The officers will conduct a room by room evacuation of the immediate area surrounding the release and secure the area, taking care not to expose themselves by contact with spilled liquids or solids, vapors or smoke. The floor above and below the area involved and the remainder of the floor where the release occurred shall be secured. Other floors shall be evacuated as required by the ranking Emergency Response Coordinator or the Incident Commander of the St. Louis Fire Department.

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 Officers shall not enter a room or stairwell if the door knob is warm or if there is released material flowing from under the door.

The primary Emergency Response Coordinator will serve as technical consultant to the St. Louis Fire Department Incident Commander and shall be responsible for directing the clean up activities following stabilization of the release. The secondary coordinators may don the necessary protective gear and clean up the chemical spill using materials from the mobile emergency response carts and the HMMB. In the event of fire, the secondary coordinator(s) wearing proper personal protective equipment may enter the building under the guidance of the St. Louis Fire Department Hazmat Team to provide expertise regarding the hazardous nature of the released materials to ensure the safety of the first responders. In the event of injuries, the primary coordinator will ensure that the injured receive treatment at the Barnes Hospital Emergency Room or Barnes Care.

The primary Emergency Response Coordinator will make the necessary notifications to the environmental agencies as soon as the release is controlled.

The Emergency Response Coordinator will complete a Chemical Incident Report and file it with the Environmental Health & Safety office.

All contaminated materials will be removed to the HMMB for disposal in accordance with all applicable laws and regulations.

If the intermediate chemical release is out of control and threatens to become a large chemical or biological release, the Emergency Response Coordinator or the St. Louis Fire Department Incident Commander shall upgrade the emergency and proceed with plans as described under the "large chemical or biological release" (see below).

WUSM Public Relations, will interface with the local media. All communications with the media shall be coordinated by WUSM Public Relations.

WUSM Protective Services Officer shall assist the St. Louis Police Department as requested by the ranking police officer on duty at the scene or the Incident Commander.

Protective Services shall not discuss the release with any members of the public or news media. A report shall be prepared that contains the building and room involved, the time the Emergency Response Coordinator was called and arrived, the time the Emergency Response Agency was called and arrived.

Building Services employees shall assist the Emergency Response Coordinator as directed in the following

Turn off mechanical equipment as directed by the ranking Emergency Response Coordinator or the Incident Commander such as, but not limited to:

- Supply air fans
- Exhaust air fans
- Fire alarm systems
- Sprinkler systems
- Electrical disconnects
- Gas valves

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Provide mechanical closure to floor drains and other openings that would permit when the compliance

be released into the environment.

Provide dikes or mechanical barriers to prevent lateral movement of released materials.

Large hazardous chemical or biological release or eminently dangerous situation

Upon receipt of a report of a major fire or hazardous biological or chemical release from laboratory staff, Protective Services officers on rounds or the central fire alarm, the Protective Services Officer at the Command Post will initiate the following actions:

Determine the extent of the fire and injuries, activate the fire alarm system if not activated, contact 911 and request emergency assistance advising the emergency response agencies of the specific location using the standard notification procedures.

If the central fire alarm is from a smoke detector, the Protective Services Officer will immediately dispatch an officer to verify there is a fire in the area identified in the alarm. If the emergency condition is verified, contact 9II as described above.

If the alarm is from a pull station or by telephone, WUSM Protective Services shall call 911 immediately.

After contacting 9II, the Protective Services Command Post shall contact all of the Washington University Emergency Response Coordinators as identified in Table I.

The officer at the Protective Services Command Post shall dispatch officers in pairs to conduct a room by room evacuation of the floors above and below the floors involved in the major emergency, taking adequate precautions to prevent personnel from being exposed to spilled liquids and solid materials, vapors, smoke and fire.

- Protective Services Officers shall not enter any room or stairwell in which the door knob is warm or from which released materials are flowing from under the door.
- A room by room evacuation of the floor(s) involved in the fire and chemical release will be conducted by the secondary Emergency Response Coordinator and/or the fire department hazmat team while wearing self-contained breathing apparatus and other protective equipment.

The primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator or the St. Louis Fire Department Incident Commander, at his/her discretion, shall cause adjacent buildings to be evacuated by Washington University Medical School Protective Services, the Police Department or the St. Louis Fire Department. Washington University Protective Services shall render assistance as requested.

The primary Emergency Response Coordinator shall, at his/her discretion, if there is a significant release of hazardous materials into the air, cause the air supply and exhaust in buildings downwind from the release to be turned off by contacting the Washington University School of Medicine Building Services Computer Operator at 362-3102.

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The primary Emergency Response Coordinator or the Incident Commander, may at his/her discretion, in the raid of the St. Louis Police Department to evacuate residents from the area if released materials are deemed harmful to their health.

Notification to the media regarding any evacuation or release of information to the public will be conducted

by Washington University School of Medicine Public Relations and/or City of St. Louis emergency agencies.

All notifications to federal, state and local officials shall be the responsibility of the Emergency Response Coordinator.

The primary Emergency Response Coordinator, ranking secondary Emergency Response Coordinator or the Chief Facilities Officer, at his/her discretion, shall activate the emergency response contractor under previous contract with the University, to conduct a cleanup of contaminated soil and debris, following the successful extinguishing of the fire.

Washington University Medical School Protective Services shall assist the St. Louis Police Department and the Incident Commander as requested by the ranking police officer on duty at the scene.

The Washington University Medical School Building Services Department, under the direction of the primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator shall assist in the following ways:

- Deactivate or activate mechanical equipment such as, but not limited to, supply air fans, exhaust air fans, fire alarm systems, sprinkler systems, gas shutoff valves, electrical disconnects.
- Provide mechanical closure to floor drains and other openings that would permit the material to be released into the environment.
- Provide dikes or mechanical barriers to prevent lateral movement of released materials.
- Obtain the services of heavy equipment owners and operators to prepare dikes, clean up contaminated soil and other necessary functions as directed.

Major disaster

In the event of a major disaster, the University Disaster Plan will apply.

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RESPONSE ACTIONS IN BUILDINGS OWNED OR OPERATED BY AFFILIATED INSTITUTIONS

In the event of a hazardous chemical or biological spill or accidental release, the laboratory staff will call the building owner/operator Protective Services Office to report the release. If a call is received by WUSM Protective Services that identifies an emergency in buildings owned or operated by affiliated institutions, the officer shall immediately notify the appropriate Protective Services/Protective Services/Police force of the institution in which the occurred emergency and provide any assistance requested.

Danforth Campus

935-5555

Barnes Hospital

362-0911

St. Louis Children's Hospital

454-6137

Jewish Hospital of St. Louis

454-7144

After normal working hours, a hazardous materials release will be detected by the Protective Services Officer making rounds and reported to the Command Post. Appropriate notifications will then be made by Protective Services.

NOTIFICATION

The Environmental Health & Safety office primary Emergency Response Coordinator, ranking secondary Emergency Response Coordinator or third Emergency Response Coordinator will notify the following agencies:

MDNR Emergency Response Coordinator (314) 634-2346

EPA Region VII Emergency Planning Response Branch (913) 236-3778

National Response Center, 24 hour, toll-free number, 800/424-8802

Local Emergency Planning Committee 314/534-2244

Any other agency required by law or regulation, as soon as it is reasonably possible after the intermediate or worst case hazardous materials release has occurred

The information report must include the following:

Name and telephone number of the reporter

Name and address of the facility

Time and type of incident

Name and quantity of materials involved, if known

The extent of injuries, if any

The possible hazards to human health or the environmental outside the facility

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Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release

CONTAINMENT AND DISPOSAL OF MATERIALS

During an emergency, the primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator will take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur or spread to other hazardous materials at the facility. These types of measure will include, where applicable, stopping processes and operations, collecting, and containing released materials and removing or isolating containers.

If the facility stops operations in response to a fire, explosion or release, the coordinator will provide for treating, storing, or disposing of recovered material, contaminated soil or water, or any other material that results from a release, fire or explosion at the facility. This will involve arranging for proper shipping containers, labeling of materials, manifesting and final shipment to permitted hazardous waste treatment or disposal facility.

MEDIA COMMUNICATIONS

In the event of a major release of hazardous chemical or biological materials that requires immediate notification of the public through the media, the Director of Medical Public Relations (362-8258), will issue the necessary announcement. The St. Louis Police and Fire Departments in cooperation with the primary Emergency Response Coordinator will utilize methods of notification to ensure the safety of the public similar to those used in other analogous situations. After the immediate crisis has passed and the hazardous material release is contained, more detailed information may be released to the media. All information will be released by Medical Public Relations. Media personnel should direct any and all requests for information or interviews to Medical Public Relations.

INCIDENT COMMAND

The first emergency response coordinator to arrive at the scene shall serve as the medical school incident commander. Command shall be passed to each higher-ranking coordinator upon his/her arrival. If emergency response agencies are summoned, incident command shall pass to the St. Louis Fire Department Incident Commander. School of Medicine Coordinators shall serve as technical advisors as required by the incident commander. Other School of Medicine personnel, e.g., Protective Services, Building Services, Custodial Services, shall assist the incident commander or his/her designee as requested.

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WUSM EMERGENCY EQUIPMENT

General Information

Reference Attachment 2 for specific information on the capabilities and specific locations.

WUSM Laboratories

- Sprinkler systems, in many buildings, safety showers and eye wash stations.
- Portable fire extinguishers.
- Personal protective equipment, which may include gloves, safety glasses, goggles, full face shields, fire blankets and mounted cabinets containing spill control equipment (for acid, base and solvent).

Emergency Response Supplies

Emergency response spill supplies are located in Clinical Sciences Research Building, second floor, Environmental Health & Safety Office, Room 2231, (CSRB 2231). This room contains the following equipment:

- ABC type portable extinguisher.
- Personal protective equipment, including organic vapor and acid cartridges, ammonia cartridges, formaldehyde cartridges and mercury cartridges, chemical resistant boots, gloves, and Tyvek coveralls with hoods.
- Traffic control markers, tape, spill control equipment including spill control pillows, absorbents (oil
 -dry, Spill-X-S, vermiculite) dustpan and brush, spark-proof shovel, neutralizing chemicals, i.e., Spill-X-A,
 Spill-X-C and formalex.

Hazardous Materials Management Building (HMMB)

Safety and emergency response supplies are located on 4th floorin the storage area and in the spill supply storage room on the 3th floor.

- Safety showers, eye washes, a fire blanket and first aid station are accessible to the laboratory and material storage areas.
- Wall mounted ABC portable dry chemical 10 lb. Class D fire extinguishers are strategically located and well marked for visibility throughout the facility.
- Centrally located spill control equipment including spill control pillows, oil-dry, vermiculite, Spill-X-S, brooms and dustpan, neutralizing chemicals (Spill-X-A, Spill-X-C, Formalex) is available.
- Personal protective equipment including chemical resistant gloves and boots, Tyvek coveralls, full face
 respirators with organic vapor and acid cartridges, ammonia cartridges, formaldehyde cartridges and mercury
 cartridges and SCBA.
- A telephone communication and alarm system is available.
- Air ventilation system with alarm.

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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

WUSM LABORATORIES AND BUILDINGS

Evacuation maps are posted on each floor of each building throughout the School of Medicine. In case of fire, a central alarm system (visual and audible) will signal the emergency. These posted evacuation routes will be utilized as defined in the fire plan for the area (See Appendix I for building specific evacuation routes). In the event of a hazardous materials release, the following specific evacuation procedures will be in effect.

Small Chemical or Biological Release (ERLI)

Washington University Protective Services will evacuate the immediate area where the release has occurred. Since the release is less than 55 gallons, the laboratory or storage room shall be evacuated. If the spill occurs in a corridor, the corridor shall be evacuated. If vapors are present, doors to rooms opening into the corridor shall be closed.

Intermediate Chemical or Biological Release (ERL2)

If the fire alarm has not sounded, Washington University Protective Services will sound the alarm and will dispatch officers to the affected area. Without exposing themselves to vapors, spilled liquid or solid materials, smoke or fire, the officers will conduct a room by room evacuation of anyone remaining in the area where the release and/or fire have occurred, including the floor above and below the affected area.

The Emergency Response Coordinator or ranking secondary Emergency Response Coordinator, with protective gear and/or the St. Louis Fire Department Hazmat Team, will check the areas involved to evacuate any injured or anyone remaining. Those injured or exposed to hazardous materials or smoke shall be removed to the Barnes Hospital Emergency Room or Barnes Care for treatment.

Large Chemical or Biological Release (ERL2)

If the fire alarm has not sounded, Protective Services will sound the alarm and dispatch officers in pairs to conduct a room by room evacuation of the floors above and below the affected area. The officers shall not expose themselves to contact with spilled hazardous liquid or solid materials, vapors, smoke or fire.

The Emergency Response Coordinator(s), with adequate protective gear and/or the St. Louis Fire Department Hazmat Team, will inspect areas involved in the release and fire. Those persons injured or exposed to hazardous materials or smoke will be decontaminated and removed to the Barnes Hospital Emergency Room or Barnes Care for treatment.

The primary Emergency Response Coordinator, in collaboration with the Incident Commander of the St. Louis Fire Department, will decide if the entire building, interconnecting buildings, adjacent buildings, other institutions or residents off-site should be evacuated.

Should there be an evacuation of the neighborhood, the St. Louis Police Department shall use methods used in analogous situations. Washington University Medical Public Relations and the city shall issue the information to the media.

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HAZARDOUS MATERIALS MANAGEMENT BUILDING (HMMB)

In the event of a chemical release or fire or injuries in the laboratory or storage areas of the HMMB, the emergency alarm (boat horn) will be sounded by the person discovering the emergency or by the Emergency Response Coordinator. The "ALERT" signal is a single repeated sounding of the horn. The "EMERGENCY" signal, which signifies evacuation, is a continuous blast. When all danger is passed the "ALL CLEAR" signal, consisting of two subsequent sequential blasts of the horn will be sounded. Upon hearing the "EMERGENCY" horn, HMMB staff and visitors will proceed to the exit, moving in the opposite direction to the fire or material release. They will proceed down the stairs to evacuate the facility as quickly as possible. In the event the stairs are not usable, a secondary exit (fire escape) located near the center of the west wall will be used. Evacuating persons will be directed to regroup on the ground floor of the HMMB building at the rear dock area if it is safe. Alternatively, assembly should be at the 4444 Building (formerly Blue Cross / Blue Shield). A head count will be taken to determine whether all have been evacuated safely. When the immediate danger is passed, the "ALL CLEAR" signal will be sounded.

AFFILIATED INSTITUTIONS

Each affiliated institution shall implement its evacuation procedure in accordance with institutional policy or upon request of the Incident Commander or the ranking Emergency Response Coordinator.

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Contingency Plan: In the event of a hazardous chemical or biological release

During the course of an emergency, injured individuals will be provided first aid as appropriate. For more serious emergencies, medical assistance will be sought. During an emergency situation, the primary Emergency Response Coordinator or the St. Louis Fire Department Incident Commander will do the following

Designate and direct personnel.

Assess the situation and summon emergency medical assistance from Barnes Hospital Emergency Room, (314) 362-9166 or the City of St. Louis Emergency Medical Ambulance Service at 911. Protective Services staff will meet incoming emergency medical service personnel at the appointed location and direct them to the injured individuals.

Assist the medical service personnel by providing notification to the hospital emergency room of the impending arrival of casualties, the nature of injuries, extent of contamination and other pertinent details such as material released and toxicity. The primary Emergency Response Coordinator or ranking secondary Emergency Response Coordinator will direct the following:

 Access to information regarding agents causing injury. If needed, the following organizations may provide additional information.

Chemtrec, I-800-424-9300 National Poison Control Center, 404-588-4400

Provide Material Safety Data Sheets from the computerized Material Safety Data Sheet program located at the Environmental Health & Safety office.

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ST. LOUIS CITY EMERGENCY RESPONSE AGENCIES

The following St. Louis City Emergency Response Agencies have been provided copies of this Contingency Plan:

- St. Louis Fire Department
- St. Louis Police Department
- St. Louis Emergency Medical Service
- St. Louis Health Department
- St. Louis Metropolitan Sewer District

The St. Louis Fire Department has agreed to respond as the primary responder. The St. Louis City Fire Department will be the primary response agency in any hazardous material incident. The fire department personnel will serve as incident commander and will contain released chemicals conduct search and rescue, extinguish fires, supervise building evacuation, protect surrounding buildings and remain on site until the hazardous condition has been controlled and stabilized. WUSM Hazmat response staff will then remediate the released materials or arrange with a private, permitted firm to remediate contamination.

The St. Louis Police Department will be responsible for crowd control and Protective Services during the incident and until WUSM can arrange with a private contract group to provide the additional Protective Services required during cleanup, City Emergency Medical Service will provide on-site paramedic care for injured staff, visitors and responders prior to transport to the Barnes/Jewish Hospital Emergency Room.

The City Health Department will provide on-site assistance in assessment of the hazards and the protection of the public as requested by the City Fire Department. Additional resources are available to the City responders under their existing mutual aid agreements.

Metropolitan Sewer District will be advised by City Fire Department regarding any hazardous materials released into the sewer system.

WASHINGTON UNIVERSITY MEDICAL CENTER HOSPITALS AND CLINICS

Washington University Medical Center treatment facilities provide emergency services on site. The physician/surgeon at the emergency room of Barnes Hospital or other medical center hospitals is authorized to provide medical treatment for University personnel or visitors injured as a result of a hazardous materials emergency or fire at the HMMB or at any of the Medical School laboratories or clinical treatment areas. Contact has been made with the above response authorities with respect to providing these services. A copy of the Washington University Medical School Contingency Plan has been provided to each.

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Contingency Plan: In the event of a hazardous chemical or biological release

POST EMERGENCY PROCEDURES/REQUIRED NOTIFICATIONS

PREVENTION OF RECURRENCE

The Emergency Response Coordinator will take all necessary steps to ensure that a second release, fire or explosion does not occur after the initial event. Procedures that will be followed by the coordinator are:

- Inspections for leaks or cracks in tanks, pipes, valves, drums or other containers.
- Inspections for pressure build-up or gas generation.
- Isolation of residual waste materials.

When all dangers of recurrence are passed, and risk of exposure is minimal, the coordinator will sound the "ALL CLEAR" signal.

DISPOSAL OF RELEASED MATERIALS AND CLEAN UP OF RESIDUES

The Emergency Response Coordinator will initiate clean up and disposal of the residues once the emergency situation is passed in order to avoid further contamination or recurrence. Spilled liquids contained by absorbent materials will be placed in drums or other containers, labeled and properly stored prior to disposal.

EQUIPMENT DECONTAMINATION

Equipment used during the cleanup will be decontaminated and prepared for future use. All facility personnel will remove contaminated clothing and shoes as needed. Fire extinguishers will immediately be recharged, personal protective equipment replaced and spill control materials restocked. Before operations are resumed, an inspection of all emergency response equipment will be conducted.

REQUIRED NOTIFICATION

Following implementation of the Contingency Plan, the primary Emergency Response Coordinator or secondary coordinator will notify the Regional Administrator, State Emergency Response Officers and any other appropriate agency, that the clean up has been accomplished as outlined above.

PERSONNEL DEBRIEFING

The Emergency Response Coordinator will conduct in-house debriefings of all participants in the incident to access preparedness and prevention steps, response actions, quality control and evacuation procedures. Based upon this evaluation, recommendations for revisions to the Contingency Plan will be made.

MEDIA BRIEFING

The Director of Medical Public Relations, will release to the media, any information regarding the hazardous material release determined by Washington University, to be necessary or beneficial to the public. All requests for information or interviews shall be directed to Medical Public Relations.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

TRAINING OF EMERGENCY RESPONSE COORDINATORS

Special training will be given to all Emergency Response Coordinators and HMMB personnel in responding to hazardous material releases, explosions and fires and implementation of the Washington University Medical School Contingency Plan. The training will be directed by a person trained in hazardous waste management procedures and chemical safety. Particular emphasis will be directed to use of emergency equipment, including alarms and fire extinguishers, respirators, spill control materials and to the shut down of HMMB operations, if necessary. Facility personnel will take part in an annual review and update of their initial emergency response training. See Training Materials/Records filed in the Environmental Health & Safety office.

RADIOACTIVE MATERIAL RELEASES

The information on the following pages identifies the emergency response personnel and the procedures to be followed in the event of radioactive material releases and/or contamination.

The use of radioactive materials at any institution is authorized by licenses issued by federal and state regulatory agencies. The various participating units that collectively comprise the Washington University Medical Center work together as a consolidated licensee in the case of radioactive materials use. The Environmental Health and Safety Office provides a support group, the Division of Radiation Safety, which manages and oversees the use of radioactive materials at our Medical Center.

Accidents that result in the spillage or release of radioactive material, including personnel contamination.

Contact WUSM Protective Services at 362-HELP (4357)
Radiation safety 24-hour Emergency Pager 826-3440
Additional numbers:
Dan Szatkowski - Office (314) 362-3476 Home (314) 849-0333
Sue Langhorst - Office (314) 362-2988 Cell (314) 435-2249 Home (314) 361-8458
John Smith - Office (314) 362-3491 Cell (636) 675-4414 Home (636) 227-7480
Radiation Safety Office: 362-3476

In the event that radiation safety assistance cannot be obtained, individuals involved in the accident should be advised to use the emergency procedures for a spill that are posted in every area of our institution where radioactive materials are utilized. In addition, these emergency procedures are specified in a Radiation Safety Manual that is also located in all areas using radioactive materials. (The manual is a white 3-ring binder).

Accidents that result in both contamination and injury to personnel

The Emergency Department of Barnes Hospital has been designated to serve as the primary location within the Medical Center for the emergency care of radiation accident victims. In such an instance, the Barnes Hospital Emergency Department should be called (362-9123) and provided with the number and names of the individuals involved, a brief description of the physical injuries and conditions of each and, if possible, an estimate of the quantity and identity of the suspected radioactive materials. Special care should be taken to minimize contamination along the route to the Emergency Department.

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DIVITION OF

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Figure 3

PROTECTIVE SERVICES OFFICERS

Protective Services Group	Head of Group	Area Served by Group
Protective Services Director Protective Services (362-3909)	John Ursch	School of Medicine
BJH/Children's Hospital Protective Services (362-0760)	Margie Brine	Barnes-Jewish Hospital, Children's Hospital
Central Institute for the Deaf Facilities Manager (977-0000)	Al Farrow	Central Institute for the Deaf (CID)

Farrow: 977-0000 x225 or (977-0225) pager: 426-0975

Hilltop Campus William Taylor Hilltop Campus Director of Police

935-5555

For further direction, you may also contact:

Debbie Mays, Manager of Environmental Health & Safety Children's Hospital (454-2606)

Bruce Backus, Director of Environmental Health and Safety WUSM, (362-6816)

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Appendix I Evacuation Routes

Contingency Plan-Washington University School of Medicine

Building Specific Information:

Barnard:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area: CSRB floor 2 link

Primary evacuation Route:

Down center stairs to floor I, left at main hallway to stairs

up to CSRB 2

Alternative(s):

North into Wohl Hospital, stairs down to I, north to CSRB

Biotech:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street, to safe area

Olin Hall Lobby

BJCIH:

Sprinkled:

Smoke Detection: Y

Y

Designated Safe Area:

Eric P. Newman Center Lobby

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street, to safe area

Cancer Research:

Sprinkled:

Smoke Detection: Y

Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Down center stairwell to floor I, south then east into

McDonnell Science building and Olin

Alternative(s):

Into the North or South building Down to floor I, towards center of

Cancer Research building, east into McDonnell Science and Olin

Clinical Sciences and Research:

Sprinkled:

Smoke Detection:

Y

Designated Safe Area:

Eric P. Newman Center Lobby

Primary evacuation

Route: North stairwell to floor 2, east through link to

designated area

Alternative(s):

South stairwell to floor I, right to emergency exit, to Children's Pl. east to

designated area

East:

Sprinkled:

Smoke Detection:

Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street to designated area

East Imaging.

💢 👑 Sprinkled:

Smoke Detection:

Designated Safe Area:

Olin Hall Lobby

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, across

street to designated area

East McDonnell Science:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Olin Hall Lobby

Primary evacuation Route:

Nearest stairwell to floor I, out main entrance, west on

street to designated area

Irene Walter Johnson:

Sprinkled:

Smoke Detection:

Y

Designated Safe Area:

Barnes Cafeteria

Primary evacuation Route:

Stairwell to floor 2, west through doorway, left down

corridor into Barnes main corridor, right to next

corridor then another right to designated area.

Alternative(s):

Stairwell to floor 2, east to main entrance, right before stairs through automatic doors, first right down Barnes main hallway to next main hall

then a right to designated area

Maternity:

Sprinkled:

N

Smoke Detection:

Designated Safe Area: Barnes Cafeteria

Primary evacuation Route:

Stairwell to floor I to end of hall, left down main

corridor to next main hallway, right to designated area

McDonnell Science:

Sprinkled:

Smoke Detection:

Y

Designated Safe Area: East Imaging Lobby

Primary evacuation Route:

Center stairwell to floor I, through cafeteria and Olin, out doors across the street into the East building, first

right into designated area

Alternative(s):

Either north or south stairwell to floor I, through cafeteria and Olin, out main entrance (Olin) across the street to the East building, first right into

designated area

McMillan:

Sprinkled:

Smoke Detection:

Y

Designated Safe Area: Barnes Cafeteria

Primary evacuation Route:

Nearest stairwell to floor I, north to main corridor then west, to next main corridor then right to designated area

Medical Library:

Sprinkled:

Smoke Detection:

Y

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Designated Safe Area:

Barnes Hospital Main Lobby

Primary evacuation Route:

Down nearest stairwell to floor I, out main entrance on SEP 0 9 2013

Euclid, across street west to designated area

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

North:

Smoke Detection: Y Sprinkled:

Olin Hall Lobby Designated Safe Area:

Nearest stairwell to floor I, south through Cancer Primary evacuation Route:

Research, left at center hallway into McDonnell

Y

Science to designated area

Down nearest stairwell to floor I, out main entrance, east on street to Alternate route:

designated area

North Tower Addition (CSRB):

Y Sprinkled: Smoke Detection:

Designated Safe Area: Eric P. Newman

Stairwell to floor I, out main entrance to street, east to Primary evacuation Route:

designated area

Stairwell to floor 3, west into CSRB, east into link to designated area Alternative(s):

Olin Residence Hall:

Y Smoke Detection: Y Sprinkled:

Designated Safe Area: Medical Library Lobby

Nearest stairwell to floor I, south into McDonnell Science Primary Evacuation Route:

then west into Designated Area

Parkview:

Y Smoke Detection: N Sprinkled:

4444 Forest Park Lobby Designated Safe Area:

Down stairwell to nearest exit to designated area Primary evacuation Route:

Renard:

Y Smoke Detection: Y Sprinkled:

Designated Safe Area: Barnes main Lobby

Stairwell to floor I, south into main corridor, next main Primary evacuation Route:

corridor left to designated area

Alternative(s): Stairwell to floor I, north through main entrance, across Children's Place to

base of CSRB

Shriners:

Smoke Detection: Y N Sprinkled:

Tennis Courts in Park across Euclid Designated Safe Area:

Primary evacuation Route: Nearest stairwell to nearest exit to designated area

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Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release

South:

Sprinkled:

Smoke Detection:

Olin Hall Lobby

Y

Designated Safe Area:

Primary evacuation Route:

Stairwell to floor I, north into Cancer Research, right at

center corridor, Through McDonnell Science to

designated area

Alternative(s):

Stairwell down to floor one, south out main entrance, east to McDonnell

Science entrance to designated area

Spoehrer:

Sprinkled:

Y

Smoke Detection:

Y

Designated Safe Area:

Medical Library Lobby

Primary evacuation Route:

· Nearest stairwell to main entrance, south on

Kingshighway to Scott then left to Library and designated

area

West:

Sprinkled:

Smoke Detection:

Y

Designated Safe Area:

Barnes cafeteria

Primary evacuation Route:

Stairwell to floor I, south through back corridor,

to main corridor west, to next main corridor north to

designated area

Alternative(s):

Stairwell to floor I, southeast into IWJ through the automatic doors to

main corridor then west to next main corridor then north to designated area

Wohl Clinic:

Sprinkled:

Y Smoke Detection:

Clinical Science and Research building second floor link Designated Safe Area: Primary evacuation Route:

West stairwell to floor 2, north into CSRB and

designated area

Alternative(s):

Far east stairwell to floor I, out emergency room exit, across

Children's Place to the base of CSRB

Wohl Hospital:

Sprinkled:

Smoke Detection:

Designated Safe Area:

Clinical Sciences and Research building

Primary evacuation Route:

South then east into Wohl clinic, western stairwell to

floor 2, north into CSRB and the designated area

Alternative(s):

Northern most stairwell to floor I, east and then north to stairway to

CSRB and designated area

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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

4444 Forest Park

Sprinkled: Y . Smoke Detection: Y

Designated Safe Area: Children's Parking Garage level I

Primary evacuation Route: Nearest stairwell to nearest exit, across Duncan to

designated area

4480 Clayton:

Sprinkled: Y Smoke Detection: Y

Designated Safe Area: Far southeast corner of rear parking lot

Primary evacuation Route: Nearest stairway to back exit to designated area

Alternative(s): Nearest stairway to front (main) entrance, around south side of building to

designated area

4511 Forest Park:

Sprinkled: Y Smoke Detection: Y

Designated Safe Area: Parking lot across Taylor street

Primary evacuation Route: Nearest stairwell to nearest exit to designated area

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Appendix 2

BJH & WUSM Emergency Response Policy

BJH Spills

Initial review of spill/odor will be conducted by BJH EH&S staff and they will authorize emergency response from WUSM EH&S if needed.

If WUSM EH&S receives the initial call from Protective Services, they will ask Protective Services if BJH EH&S was contacted first and ensure that authorization was provided by BJH EH&S prior to remediation of any spill/odor.

If WUSM EH&S and Protective Services are unable to reach BJH EH&S for authorization within 20 minutes, WUSM EH&S will respond to the emergency without BJH authorization.

Once WUSM EH&S emergency response representative is on the scene, that person becomes Incident Commander and follows the WUSM EH&S Emergency Response Protocol. BJH representative may be asked to assist.

BJH Spill Debris

If WUSM EH&S remediates a BJH spill, all BJH spill debris will be properly containerized and labeled in compliance with Missouri Department of Natural Resources guidelines and temporarily stored at the spill site until BJH spill responders transport the debris to the BJH waste storage area (unless other arrangements are made). WUSM EH&S will notify BJH EH&S that there is spill debris that needs removed. Removal of the spill debris should take place that day or the following day if the spill occurred the night before.

Helpful numbers

Children's Hospital
SLCH EH&S
SLCH Protective Serv

454-6092

SLCH Protective Services

362-0750

Barnes Jewish Hospital

BJH EH&S BJH Protective Services 454-7008 362-0750

Washington University

WUSM EH&S WUSM Spill Beeper 362-6816

WUSM Protective Services

836-2877 362-HELP (4357)

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Appendix3

Reportable Quantities List

Reportable Quantities for Hazardous Substances and Radionuclides

This appendix lists materials and their corresponding reportable quantities (RQ's) that are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601(14) (CERCLA;42 U.S.C. 9601 et seq). This listing fulfills the requirement of CERCLA, 42 U.S.C. 9656(a), that all "hazardous substances," as defined in 42 U.S.C. 9601(14), be listed and regulated as hazardous materials under 49 U.S.C. 5101-5127. That definition includes substances listed under sections 311(b)(2)(A) and 307(a) of the Federal Water Pollution Control Act, 33 U.S.C. 1321(b)(2)(A) and 1317(a), section 3001 of the Solid Waste Disposal Act, 42 U.S.C. 6921, and section 112 of the Clean Air Act, 42 U.S.C. 7412. In addition, this list contains materials that the Administrator of the Environmental Protection Agency has determined to be hazardous substances in accordance with section 102 of CERCLA, 42 U.S.C. 9602. It should be noted that 42 U.S.C. 9656(b) provides that common and contract carriers may be held liable under laws other than CERCLA for the release of a hazardous substance as defined in that Act, during transportation that commenced before the effective date of the listing and regulating of that substance as a hazardous material under

49 U.S.C. 5101-5127. 2. This appendix is divided into two TABLES which are entitled ``TABLE 1--HAZARDOUS SUBSTANCES and REPORTABLE QUANTITIES OTHER THAN RADIONUCLIDES" and ``TABLE 2--RADIONUCLIDES." A material listed in this appendix is regulated as a hazardous material and a hazardous substance under this subchapter if it meets the definition of a hazardous substance in Sec. 171.8 of this subchapter.

Column 1 of TABLE 1, entitled "Hazardous substance", contains the names of those elements and compounds that are hazardous substances. Following the listing of elements and compounds is a listing of waste streams. These waste streams appear on the list in numerical sequence and are referenced by the appropriate "D", OR "F" numbers. Since "K" numbers don't apply to Washington University School of Medicine, they are excluded from this list. Column 2 of TABLE 1, entitled "Reportable quantity (RQ)", contains the reportable quantity (RQ), in pounds and kilograms, for each hazardous substance listed in Column 1 of TABLE 1.

TABLE 2 lists radionuclides that are hazardous substances and their corresponding RQ's. The RQ's in table 2 for radionuclides are expressed in units of curies and terabecquerels, whereas those in table 1 are expressed in units of pounds and kilograms. If a material is listed in both table 1 and table 2, the lower RQ shall apply. Radionuclides are listed in alphabetical order. The RQ's for radionuclides are given in the radiological unit of measure of curie, abbreviated "Ci", followed, in parentheses, by an equivalent unit measured in terabecquerels, abbreviated "TBq".

For mixtures of radionuclides, the following requirements shall be used in determining if a package contains an RQ of a hazardous substance: (i) if the identity and quantity (in curies or terabecquerels) of each radionuclide in a mixture or solution is known, the ratio between the quantity per package (in curies or terabecquerels) and the RQ for the radionuclide must be determined for each radionuclide. A package contains an RQ of a hazardous substance when the sum of the ratios for the radionuclides in the mixture or solution is equal to or greater than one; (ii) if the identity of each radionuclide in a mixture or solution is known but the quantity per package (in curies or terabecquerels) of one or more of the radionuclides is unknown, an RQ of a hazardous substance is present in a package when the total quantity (in curies or terabecquerels) of the mixture or solution is equal to or greater than the lowest RQ of any individual radionuclide in the mixture or solution; and (iii) if the identity of one or more radionuclides in a mixture or solution is unknown (or if the identity of a radionuclide by itself is unknown), an RQ of a hazardous substance is present when the total quantity (in curies or terabecquerels) in a package is equal to or greater than either one curie or the lowest RQ of any known individual radionuclide in the mixture or solution, whichever is lower.

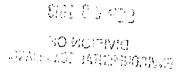


Table 1 Hazardous Substances and Reportable Quantities other than Radionuclides

Reportable quantity (RQ)

Hazardous substance	pounds (kilograms)
Acenaphthene	100 (45.4)
Acenaphthylene	5000 (2270)
Acetaldehyde	1000 (454)
Acetaldehyde, chloro-	1000 (454)
Acetaldehyde, trichloro-	5000 (2270)
Acetamide	100 (45.4)
Acetamide, N-(aminothioxomethyl)-	1000 (454)
Acetamide, N-(4-ethoxyphenyl)	100 (45.4)
Acetamide, N-fluoren-2-yl-	1 (0.454)
Acetamide, 2-fluoro-	100 (45.4)
Acetic acid	5000 (2270)
Acetic acid (2,4-dichlorophenoxy)-	100 (45.4)
Acetic acid, ethyl ester	5000 (2270)
Acetic acid, fluoro-, sodium salt	10 (4.54)
Acetic acid, lead (2+) salt	10 (4.54)
Acetic acid, thallium(1+) salt	1000 (454)
Acetic anhydride	5000 (2270)
Acetone	5000 (2270)
Acetone cyanohydrin	10 (4.54)
Acetonitrile	5000 (2270)
Acetophenone	5000 (2270)
2-Acetylaminofluorene	I (0.454)
Acetyl bromide	5000 (2270)
Acetyl chloride	5000 (2270)
I-Acetyl-2-thiourea	1 (0.454)
Acrylamide	5000 (2270)
Acrylic acid	5000 (2270)
Acrylonitrile	100 (45.4)
Adipic acid	5000 (2270)
AldicarbD .	1 (0.454)
Aldrin	1 (0.454)
Allyl alcohol	100 (45.4)
Allyl chloride	
Aluminum phosphide	1000 (454)
Aluminum sulfate	100 (45.4)
4-Aminobiphenyl	5000 (2270)
5-(Aminomethyl)-3-isoxazolol	1 (0.454)
	1000 (454)
4-Aminopyridine Amitrole	1000 (454)
	10 (4.54)
Ammonia	100 (45.4)
Ammonium acetate	5000 (2270)
Ammonium benzoate	5000 (2270)
Ammonium bicarbonate	5000 (2270)
Ammonium bichromate	10 (4.54)
Ammonium bifluoride	100 (45.4)
Ammonium bisulfite	5000 (2270)
Ammonium carbamate	5000 (2270)
Ammonium carbonate	5000 (2270)
Ammonium chloride	5000 (2270)
Antmonium chromate	10 (4.54)
Ammonium citrate, dibasic	5000 (2270)
Ammonium dichromate	10 (4.54)
Ammonium fluoborate	5000 (2270)
Ammonium fluoride	100 (45.4)
Ammonium hydroxide .	. 1000 (454)
Ammonium oxalate	5000 (2270)
Ammonium picrate	10 (4.54)

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Contingency Plan: In the event of a hazardous chemical or biological release

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Ammonium silicofluoride	1000 (454)
Ammonium sulfamate	5000 (2270)
Ammonium sulfide	100 (45.4)
Ammonium sulfite	5000 (2270)
Ammonium tartrate	5000 (2270)
Ammonium thiocyanate	5000 (2270)
Ammonium vanadate	1000 (454)
Amyl acetate	5000 (2270)
iso-Amyl acetate	
sec-Amyl acetate	5000 (2270)
tert-Amyl acetate	
Aniline	5000 (2270)
o-Anisidine	100 (45.4)
Anthracene	5000 (2270)
Antimony cents	5000 (2270)
Antimony pentachloride	1000 (454)
Antimony potassium tartrate	100 (45.4)
Antimony tribromide	1000 (454)
Antimony trichloride	1000 (454)
Antimony trifluoride	1000 (454)
Antimony trioxide	1000 (454)
Argentate(1-), bis(cyano-C)-, potassium	I (0.454)
Aroclor 1016	1 (0.454)
Aroclor I221	1 (0.454)
Aroclor 1232	1 (0.454)
Aroclor 1242	1 (0.454)
Aroclor 1248	1 (0.454)
Aroclor 1254	I (0.454) I (0.454)
Aroclor 1260	1 (0.454)
Arsenic cents	1 (0.454)
Arsenic acid Arsenic acid H3AsO4	I (0.454)
Arsenic disulfide	1 (0.454)
Arsenic oxide As203	1 (0.454)
Arsenic oxide As205	1 (0.454)
Arsenic pentoxide	1 (0.454)
Arsenic trichloride	I (0.454)
Arsenic trioxide	1 (0.454)
Arsenic trisulfide	1 (0.454)
Arsine, diethyl-	1 (0.454)
Arsinic acid, dimethyl-	1 (0.454)
Arsonous dichloride, phenyl-	I (0.454)
Asbestos cents cents	1 (0.454)
Auramine	100 (45.4).
Azaserine	1 (0.454)
Aziridine	1 (0.454)
Aziridine, 2-methyl-	1 (0.454)
Azirino[2',3':3,4]pyrrolo(1,2-a)indole-4,7-dione,6-	10 (4.54)
amino-8-[[(aminocarbonyl)oxy] methyl]-1,1a,2,8,8a, 8b-hexahydro-	
8a-methoxy-5-methyl-, [1aS-[aalpha,8beta,8aalpha,8balpha)]-	
Barium cyanide	10 (4.54)
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	10 (4.54)
Benz[c]acridine	100 (45.4)
3,4-Benzacridine	100 (45.4)
Benzal chloride	5000 (2270)
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)	5000 (2270)
Benz[a]anthracene	10 (4.54)
1,2-Benzanthracene	10 (4.54)
Benzfalanthracene; 7,12-dimethyl-	1 (0.454)
Benzenamine	5000 (2270)
	100 (45.4)
Benzenamine, 4,42-carbonimidoylbis (N,N-dimethyl-	1 100 (30.3)

Benzenamine, 4-chloro-	1000 (454)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	100 (45.4)
Benzenamine, N,N-dimethyl-4-(phenylazo)-	10 (4.54)
Benzenamine, 2-methyl-	100 (45.4)
Benzenamine, 4-methyl-	100 (45.4)
Benzenamine, 4,4'-methylenebis(2-chloro-	10 (4.54)
Benzenamine, 2-methyl-, hydrochloride	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	100 (45.4)
Benzenamine, 4-nitro-	5000 (2270)
Benzene	10 (4.54)
Benzene, 1-bromo-4-phenoxy-	100 (45.4)
Benzene, chloro-	100 (45.4)
Benzene, chloromethyl-	100 (45.4)
Benzene, 1,2-dichloro-	100 (45.4)
Benzene, 1,3-dichloro-	100 (45.4)
Benzene, 1,4-dichloro-	100 (45.4)
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro	I (0.454)
Benzene, dichloromethyl-	\$000 (2270)
Benzene, 1,3-diisocyanatomethyl	100 (45.4)
Benzene, dimethyl-	100 (45.4)
Benzene, m-dimethyl-	1000 (454)
Benzene, o-dimethyl-	1000 (454)
Benzene, p-dimethyl-	100 (45.4)
Benzene, hexachloro-	10 (4.54)
Benzene, hexahydro-	1000 (454) "
Benzene, hydroxy-	1000 (454)
Benzene, methyl-	1000 (454)
Benzene, 1-methyl-2,4-dinitro-	10 (4.54)
Benzene, 2-methyl-1,3-dinitro-	100 (45.4)
Benzene, 1-methylethyl-	5000 (2270)
Benzene, nitro-	1000 (454)
Benzene, pentachloro-	10 (4.54)
Benzene, pentachloronitro-	100 (45.4)
Benzene, 1,2,4,5-tetrachloro-	5000 (2270)
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	I (0.454)
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy)-	I (0.454)
Benzene, (trichloromethyl)	10 (4.54)
Benzene, 1,3,5-trinitro-	10 (4.54)
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-	10 (4.54)
alpha-hydroxy-, ethyl ester	
Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	10 (4.54)
Benzenediamine, ar-methyl-	10 (4.54)
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	10 (4.54)
1,2-Benzenedicarboxylic acid, diethyl ester	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	5000 (2270)
1,2-Benzenedicarboxylic acid, dioctyl ester	5000 (2270)
1,3-Benzenediol	5000 (2270)
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-	1000 (454)
Benzeneethanamine, alpha, alpha-dimethyl-	5000 (2270)
Benzeneethanamine, alpha, alpha-dimethyl-	5000 (2270)
Benzenesulfonic acid chloride	100 (45.4)
Benzenesulfonyl chloride	100 (45.4)
Benzenethiol	100 (45.4)
Benzidine	1 (0.454)
1,2-Benzisothiazol-3(2H)-one,1,1-dioxide	100 (45.4)

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	10 (4.54)
Benzo[a]anthracene	100 (45.4)
1,3-Benzodioxole, 5-(2-propenyl)-	100 (45.4)
1,3-Benzodioxole, 5-(1-propenyl)-	10 (4.54)
1,3-Benzodioxole, 5-propyl-	
Benzo[b]fluoranthene	1 (0.454)
Benzo[k]fluoranthene	5000 (2270)
Benzo[j,k]fluorene	100 (45.4)
Benzoic acid	5000 (2270)
Benzonitrile	5000 (2270)
Benzo[g,h,i]perylene	5000 (2270)
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl- butyl)-, &	100 (45.4)
salts, when present at concentrations greater than 0.3%	1 (0 454)
Benzo[a]pyrene	1 (0.454)
3,4-Benzopyrene	1 (0.454)
p-Benzoquinone	10 (4.54)
Benzo [rst]pentaphene	10 (4.54)
Benzotrichloride	10 (4.54)
Benzoyl chloride	1000 (454)
1,2-Benzphenanthrene	100 (45.4)
Benzyl chloride	100 (45.4)
Beryllium cents	10 (4.54)
Beryllium chloride	I (0.454)
Beryllium dust cents	10 (4.54)
Beryllium fluoride	1 (0.454)
Beryllium nitrate	I (0.454)
alpha - BHC	10 (4.54)
beta - BHC	1 (0.454)
delta - BHC	1 (0.454)
gamma - BHC	1 (0.454)
2,2'Bioxirane	10 (4.54)
	100 (45.4)
Biphenyl (1.12 Pinhenyl) 4.42 diamina	1 (0.454)
(1,1'-Biphenyl)-4,4'-diamine	I (0.454)
(1,1'-Biphenyl)-4,4'-diamine,3,3'-dichloro-	10 (4.54)
(1,1'-Biphenyl)-4,4'-diamine,3,3'-dimethoxy-	10 (4.54)
(1,1'-Biphenyl)-4,4'-diamine,3,3'-dimethyl-	<u> </u>
Bis(2-chloroethoxy) methane	1000 (454)
Bis(2-chloroethyl) ether	10 (4.54)
Bis(2-ethylhexyl)phthalate	100 (45.4)
Bromoacetone	1000 (454)
Bromoform	100 (45.4)
4-Bromophenyl phenyl ether	100 (45.4)
Brucine	100 (45.4)
1,3-Butadiene	10 (4.54)
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	I (0.454)
1-Butanamine, N-butyl-N-nitroso-	10 (4.54)
1-Butanol	5000 (2270)
2-Butanone	5000 (2270)
2-Butanone, 3,3-dimethyl-1-(methylthio)-,O-	100 (45.4)
[(methylamino)carbonyl] oxime	
2-Butanone peroxide	10 (4.54)
2-Butenal	100 (45.4)
2-Butene, 1,4-dichloro-	1 (0.454)
2-Butenoic acid, 2-methyl-,7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-	10 (4.54)
methy[-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl	
ester, [1S-[1alpha(Z),7(2S*, 3R*), 7alpha]]-	
Butvl acetate	5000 (2270)
iso-Butyl acetate sec-Butyl acetate tert-Butyl acetate	5000 (2270)
Land to the had	

n-Butyl alcohol	5000 (2270)
Butylamine	1000 (454)
iso-Butylamine	1000 (434)
sec-Butylamine	
tert-Butylamine	
Butyl benzyl phthalate	100 (45.4)
n-Butyl phthalate	10 (4.54)
Butyric acid	5000 (2270)
iso-Butyric acid	1 (0.454)
Cacodylic acid	1 (0.434)
Cadmium cents	10 (4.54)
Cadmium cents Cadmium acetate	10 (4.54)
Cadmium bromide	10 (4.54)
Cadmium chloride	10 (4.54)
Calcium arsenate	I (0.454)
Calcium arsenite	
Calcium carbide	1 (0.454)
	10 (4.54)
Calcium chromate Calcium cyanamide	10 (4.54) 1000 (454)
Calcium cyanide	10 (4.54)
Calcium cyanide Ca(CN)2	10 (4.54)
Calcium dodecylbenzene sulfonate	1000 (454)
Calcium hypochlorite	10 (4.54)
Camphene, octachloro-	1 (0.454)
Caprolactam	5000 (2270)
Captan	10 (4.54)
Carbamic acid, ethyl ester	100 (45.4)
Carbamic acid, methylnitroso-, ethyl ester	1 (0.454)
Carbamic chloride, dimethyl-	1 (0.454)
Carbamide, thio-	10 (4.54)
Carbamimidoselenoic acid	1000 (454)
Carbamothioic acid, bis (1-methylethyl)-, S-(2,3-	100 (45.4)
dichloro-2-propenyl) ester	100 (45.4)
Carbaryl	100 (45.4)
Carbofuran	10 (4.54)
Carbon bisulfide	100 (45.4)
Carbon disulfide	100 (45.4)
Carbonic acid, dithallium (I+)	100 (45.4)
Carbonic dichloride	10 (4.54)
Carbonic difluoride	1000 (454)
Carbonochloridic acid, methyl ester	1000 (454)
Carbon oxyfluoride	1000 (454)
Carbon tetrachloride	10 (4.54)
Carbonyl sulfide	100 (45.4)
Catechol	100 (45.4)
Chloral	5000(2270)
Chloramben	100 (45.4)
Chlorambucil	10 (4.54)
Chlordane	1 (0.454)
Chlordane, alpha & gamma isomers	1 (0.454)
Chlordane, technical	1 (0.454)
Chlorine	10 (4.54)
Chlornaphazine	100 (45.4)
Chloroacetaldehyde	1000 (454)
Chloroacetic acid	100 (45.4)
2-Chloroacetophenone	100 (45.4)
p-Chloroaniline	1000 (454)

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Chlorobenzene	100 (45.4)
Chlorobenzilate	10 (4.54)
4-Chloro-m-cresol	5000 (2270)
p-Chloro-m-cresol	5000 (2270)
Chlorodibromomethane	100 (45.4)
Chloroethane	100 (45.4)
2-Chloroethyl vinyl ether	1000 (454)
Chloroform	10 (4.54)
Chloromethane	100 (45.4)
Chloromethyl methyl ether	1 (0.454)
beta-Chloronaphthalene	5000 (2270)
2-Chloronaphthalene	5000 (2270)
2-Chlorophenol	100 (45.4)
o-Chlorophenol	100 (45.4)
4-Chlorophenyl phenyl ether	5000 (2270)
1-(o-Chlorophenyl)thiourea	100 (45.4)
<u> </u>	100 (45.4)
Chloroprene Chloroprenionitrile	1000 (45.4)
3-Chloropropionitrile Chlorosulfonic acid	1000 (454)
4-Chloro-o-toluidine, hydrochloride	100 (45.4)
	I (0.454)
Chlorpyrifos	1000 (454)
Chromic acetate	10 (4.54)
Chromic acid	10 (4.54)
Chromic acid H2CrO4, calcium salt	1000 (454)
Chromic sulfate	5000 (2270)
Chromium cents	. 1000 (454)
Chromous chloride	1000 (45.4)
Chrysene	
Cobaltous bromide	1000 (454)
Cobaltous formate	1000 (454)
Cobaltous sulfamate	1 (0.454)
Coke Oven Emissions	5000 (2270)
Copper cents	10 (4.54)
Copper chloride	10 (4.54)
Copper cyanide	
Copper cyanide CuCN	10 (4.54)
Coumaphos	
Creosote	1 (0.454)
Cresols (isomers and mixture)	100 (45.4)
m-Cresol	100 (45.4)
o-Cresolo	100 (45.4)
p-Cresol	100 (45.4)
Cresylic acid (isomers and mixture)	100 (45.4)
m-Cresylic acid	100 (45.4)
o-Cresylic acid	100 (45.4)
p-Cresylic acid	100 (45.4)
Crotonaldehyde	100 (45.4)
Cumene	5000 (2270)
Cupric acetate	100 (45.4)
Cupric acetoarsenite	I (0.454)
Cupric chloride	10 (4.54)
Cupric intrate	100 (45.4)
Cupric oxalate	100 (45.4)
Cupric sulfate: V 1.3.	10 (4.54)
Cupric sulfate ammoniated	100 (45.4)
Cupric tartrate (1,7,10)	100 (45.4)

Cyanides (soluble salts and complexes) not otherwise	10 (4.54)
specified	10 (1.01)
Cyanogen	100 (45.4)
Cyanogen bromide	1000 (454)
Cyanogen bromide (CN)Br	1000 (454)
Cyanogen chloride	10 (4.54)
Cyanogen chloride (CN)Cl	10 (4.54)
2,5-Cyclohexadiene-1,4-dione	10 (4.54)
Cyclohexane	1000 (454)
Cyclohexane, 1,2,3,4,5,6-hexachloro-,	1 (0.454)
(1alpha,2alpha,3beta,4alpha,5alpha,6beta)-	
Cyclohexanone	5000 (2270)
2-Cyclohexyl-4,6-dinitrophenol	100 (45.4)
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	10 (4.54)
Cyclophosphamide	10 (4.54)
2,4-D Acid	100 (45.4)
2,4-D Ester	100 (45.4)
Daunomycin	10 (4.54)
DDD '	1 (0.454)
4,4'-DDD	I (0.454)
DDE	5000 (2270)
4,4'-DDE	5000 (2270)
DDE .	1 (0.454)
4,4'-DDE	1 (0.454)
DDT	1 (0.454)
4,4'-DDT	I (0.454)
Diallate	100 (45.4)
Diamine	1 (0.454)
Diazinon	1 (0.454)
Diazomethane	100 (45.4)
Dibenz[a,h]anthracene	1 (0.454)
1,2:5,6-Dibenzanthracene	I (0.454)
Dibenzo[a,h]anthracene	I (0.454)
Dibenzofuran	100 (45.4)
Dibenz[a,i]pyrene	10 (4.54)
1,2-Dibromo-3-chloropropane	1 (0.454)
Dibutyl phthalate	10 (4.54)
Di-n-butyl phthalate	10 (4.54)
Dicamba	1000 (454)
Dichlobenil	100 (45.4)
Dichlone	1 (0.454)
Dichlorobenzene	100 (45.4)
1,2-Dichlorobenzene	100 (45.4)
1,3-Dichlorobenzene	100 (45.4)
1,4-Dichlorobenzene	100 (45.4)
m-Dichlorobenzene	100 (45.4)
o-Dichlorobenzene	100 (45.4)
p-Dichlorobenzene	100 (45.4)
3,3'-Dichlorobenzidine	1 (0.454)
Dichlorobromomethane	5000 (2270)
1,4-Dichloro-2-butene	1 (0.454)
Dichlorodifluoromethane	5000 (2270)
1,1-Dichloroethane	1000 (454)
1,2-Dichloroethane	100 (45.4)
1,1-Dichloroethylene	100 (45.4)
1,2-Dichloroethylene	1000 (454)

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	10 (4.54)
Dichloroethyl ether	1000 (454)
Dichloroisopropyl—ether	1000 (454)
Dichloromethane @	1000 (454)
Dichloromethoxy ethane	I (0.454)
Dichloromethyl ether	100 (45.4)
2,4-Dichlorophenol	
2,6-Dichlorophenol	100 (45.4)
Dichlorophenylarsine	1 (0.454)
Dichloropropane	1000 (454)
1,1-Dichloropropane	1000 (454)
1,3-Dichloropropane	1000 (454)
1,2-Dichloropropane	1000 (454)
Dichloropropane - Dichloropropene (mixture)	100 (45.4)
Dichloropropene	100 (45.4)
2,3-Dichloropropene	100 (45.4)
1,3-Dichloropropene	100 (45.4)
2,2-Dichloropropionic acid	5000 (2270)
Dichlorvos	10 (4.54)
Dicofol	10 (4.54)
Dieldrin	I (0.454)
1,2:3,4-Diepoxybutane	10 (4.54)
Diethanolamine	100 (45.4)
Diethylamine	1000 (454)
N,N-diethylaniline	1000 (454)
Diethylarsine	I (0.454)
1,4-Diethylenedioxide	100 (45.4)
Diethylhexyl phthalate	100 (45.4)
N,N'-Diethylhydrazine	10 (4.54)
O,O-Diethyl S-methyl dithiophosphate	5000 (2270)
Diethyl-p-nitrophenyl phosphate	100 (45.4)
Diethyl phthalate	1000(454)
O,O-Diethyl O-pyrazinyl phosphorothioate	100 (45.4)
Diethylstilbestrol	1 (0.454)
Diethyl sulfate	10 (4.54)
Dihydrosafrole	10 (4.54)
Diisopropyl fluorophosphate	100 (45.4)
1,4,5,8-Dimethanonaphthalene	1 (0.454)
1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro,	
(1alpha,4alpha,4abeta,5abeta,8beta,8abeta)-	
1,4,5,8-Dimethanonaphthalene,1,2,3,4,10,10-10-hexachloro-	I (0.454)
1,4,4a,5,8,8a-hexahydro-	
(1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)	
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-	1 (0.454)
hexachloro-1a,2,2a,3,6,6a,7,7a octahydro-	
,(1aalpha,2beta,2abeta,3alpha,6alpha,6abeta, 7beta,7aalpha)-	
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-	1 (0.454)
hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-	
,(1aalpha,2beta,2aalpha,3beta,6beta,6aalpha, 7beta,7aalpha)-	
Dimethoate	10 (4.54)
3,3'-Dimethoxybenzidine	10 (4.54)
Dimethylamine	1000 (454)
p-Dimethylaminoazobenzene	10 (4.54)
N,N-dimethylaniline	100 (45.4)
7,12-Dimethylbenz[a]anthracene	1 (0.454)
3,3'-Dimethylbenzidine	10 (4.54)
alpha,alpha-Dimethylbenzylhydroperoxide	10 (4.54)
aipha,aipha-Dimenyioenzyinyaroperoxide	

Dimethylcarbamoyl chloride	1 (0.454)
Dimethylformamide	100 (45.4)
1,1-Dimethylhydrazine	10 (4.54)
1,2-Dimethylhydrazine	1 (0.454)
Dimethylhydrazine, unsymmetrical @	10 (4.54)
alpha,alpha-Dimethylphenethylamine	5000 (2270)
12,4-Dimethylphenol	100 (45.4)
Dimethyl phthalate	5000 (2270)
Dimethyl sulfate	100 (45.4)
Dinitrobenzene (mixed)	100 (45.4)
m-Dinitrobenzene	100 (45.4)
o-Dinitrobenzene	100 (45.4)
p-Dinitrobenzene	100 (45.4)
4,6-Dinitro-o-cresol and salts	10 (4.54)
Dinitrogen tetroxide @	10 (4.54)
Dinitrophenol	10 (4.54)
2,5-Dinitrophenol	10 (4.54)
2,4-Dinitrophenol	10 (4.54)
Dinitrotoluene	10 (4.54)
3,4-Dinitrotoluene	10 (4.54)
2,4-Dinitrotoluene	10 (4.54)
2,6-Dinitrotoluene	100 (45.4)
Dinoseb	1000 (454)
Di-n-octyl phthalate	5000 (2270)
1,4-Dioxane	100 (45.4)
1,2-Diphenylhydrazine	10 (4.54)
Diphosphoramide, octamethyl-	100 (45.4)
Diphosphoric acid, tetraethyl ester	10 (4.54)
Dipropylamine	5000 (2270)
Di-n-propylnitrosamine	10 (4.54)
Diquat	1000 (454)
Disulfoton	I (0.454)
Dithiobiuret	100 (45.4)
Diuron	100 (45.4)
Dodecylbenzenesulfonic acid	1000 (454)
2,4-D, salts and esters	100 (45.4)
Endosulfan	1 (0.454)
alpha-Endosulfan	1 (0.454)
beta-Endosulfan	I (0.454)
Endosulfan sulfate	1 (0.454)
Endothall	1000 (454)
Endrin	1 (0.454)
Endrin, & metabolites	1 (0.454)
Endrin aldehyde	1 (0.454)
Epichlorohydrin	100 (45.4)
Epinephrine	1000 (454)
1,2-Epoxybutane	100 (45.4)
Ethanal	1000 (454)
Ethanamine, N-ethyl-N-nitroso-	1 (0.454)
Ethane, 1,2-dibromo-	1 (0.454)
Ethane, 1,1-dichloro-	1000 (454)
Ethane, 1,2-dichloro-	100 (45.4)
Ethane, hexachloro-	100 (45.4)
Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro-	1000 (454)
Ethane, 1,1'-oxybis-	100 (45.4)
Ethane, 1,1'-oxybis(2-chloro-	10 (4.54)

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Ethana mantachlara	10 (4.54)
Ethane, pentachloro- Ethane, 1,1,1,2-tetrachloro-	100 (45.4)
	100 (45.4)
Ethane, 1,1,2,2-tetrachloro- Ethane, 1,1,2-trichloro	100 (45.4)
Ethane, 1,1,1-trichloro-	1000 (454)
1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-	5000 (2270)
thienyl-methyl)-	
Ethanedinitrile	100 (45.4)
Ethanenitrile	5000 (2270)
Ethanethioamide	10 (4.54)
Ethanimidothioic acid, N-[[(methylamino)carbonyl] oxy]-,	100 (45.4)
methyl ester	
Ethanol, 2-ethoxy-	1000 (454)
Ethanol, 2,2'-(nitrosoimino)bis-	I (0.454)
Ethanone, 1-phenyl-	5000 (2270)
Ethanoyl chloride	5000 (2270)
Ethene, chloro-	1 (0.454)
Ethene, 2-chloroethoxy-	1000 (454)
Ethene, 1,1-dichloro-	100 (45.4)
Ethene, 1,2-dichloro- (É)	1000 (454)
Ethene, tetrachloro-	100 (45.4)
Ethene, trichloro-	100 (45.4)
Ethion Ethion	10 (4.54)
Ethyl acetate	5000 (2270)
Ethyl acrylate	1000 (454)
Ethylbenzene	1000 (454)
Ethyl carbamate (Urethan)	100 (45.4)
Ethyl chloride @	100 (45.4)
Ethyl cyanide	10 (4.54)
Ethylene dibromide	1 (0.454)
Ethylene dichloride	100 (45.4)
Ethylene glycol	5000 (2270)
Ethylene glycol monoethyl ether	1000 (454)
Ethylene oxide	10 (4.54)
Ethylenebisdithiocarbamic acid	5000 (2270)
Ethylenebisdithiocarbamic acid, salts and esters	5000 (2270)
Ethylenediamine	5000 (2270)
Ethylenediamine tetraacetic acid (EDTA)	5000 (2270)
Ethylenethiourea	10 (4.54)
Ethylenimine	1.(0.454)
Ethyl ether	100 (45.4)
Ethylidene dichloride	1000 (454)
Ethyl methacrylate	1000 (454)
Ethyl methanesulfonate	1 (0.454)
Ethyl methyl ketone @	5000 (2270)
Famphurdimethylester	1000 (454)
Ferric ammonium citrate	1000 (454)
Ferric ammonium oxalate	1000 (454)
Ferric chloride	1000 (454)
·Ferricifluoride : 3 !	100 (45.4)
Ferric nitrate	1000 (454)
Ferric sulfate: **:	1000 (454)
Ferrous ammonium sulfate	1000 (454)
Ferrous chloride	100 (45.4)
Ferrous sulfate (1) 110005	1000 (454)
Fluoranthene	100 (45.4)
1	

Fluorene	5000 (2270)
Fluorine	5000 (2270)
Fluoroacetamide	10 (4.54)
Fluoroacetic acid, sodium salt	10 (4.54)
Formaldehyde	100 (45.4)
Formic acid	5000 (2270)
Fulminic acid, mercury(2+)salt	10 (4.54)
Fumaric acid	5000 (2270)
Furan	100 (45.4)
Furan, tetrahydro-	1000 (454)
2-Furancarboxaldehyde	5000 (2270)
2,5-Furandione	5000 (2270)
Furfural	5000 (2270)
Furfuran	100 (45.4)
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	I (0.454)
D-Glucose, 2-deoxy-2-[[methylnitrosoamino)-	1 (0.454)
carbonyl]amino]-	7 (0.101)
Glycidylaldehyde	10 (4.54)
Guanidine, N-methyl-N'-nitro-N-nitroso-	10 (4.54)
Guthion	1 (0.454)
Heptachlor	1 (0.454)
Heptachlor epoxide	I (0.454)
Hexachlorobenzene	10 (4.54)
Hexachlorobutadiene	I (0.454)
Hexachlorocyclohexane (gamma isomer)	1 (0.454)
Hexachlorocyclopentadiene	10 (4.54)
Hexachloroethane	100 (45.4)
1,2,3,4,10-10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-	1 (0.454)
endo, exo-dimethanonaphthalene	. ()
Hexachlorophene	100 (45.4)
Hexachloropropene	1000 (454)
Hexaethyl tetraphosphate	100 (45.4)
Hexamethylene-1,6-diisocyanate	100 (45.4)
Hexamethylphosphoramide	1 (0.454)
Hexane	5000 (2270)
Hydrazine	1 (0.454)
Hydrazine, 1,2-diethyl-	10 (4.54)
Hydrazine, 1,1-dimethyl-	10 (4.54)
Hydrazine, 1,2-dimethyl-	1 (0.454)
Hydrazine, 1,2-diphenyl-	10 (4.54)
Hydrazine, methyl-	10 (4.54)
Hydrazinecarbothioamide	100 (45.4)
Hydrochloric acid	5000 (2270)
Hydrocyanic acid	10 (4.54)
Hydrofluoric acid	100 (45.4)
Hydrogen chloride	5000 (2270)
Hydrogen cyanide	10 (4.54)
Hydrogen fluoride	100 (45.4)
Hydrogen phosphide	100 (45.4)
Hydrogen sulfide	100 (45.4)
Hydrogen sulfide H2S	100 (45.4)
Hydroperoxide, 1-methyl-1-phenylethyl-	10 (4.54)
Hydroquinone	100 (45.4)
2-Imidazolidinethione	10 (4.54)
Indeno(1,2,3-cd)pyrene	100 (45.4)
1,3-Isobenzofurandione	5000 (2270)

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T 1 (1.1-1-1	5000 (2270)
Isobutyl alcohol	1 (0.454)
Isodrin	5000 (2270)
Isophorone	100 (45.4)
Isoprene	1000 (454)
Isopropanolamine dodecylbenzene sulfonate	100 (45.4)
Isosafrole	1000 (454)
3(2H)-Isoxazolone, 5-(aminomethyl)-	
Keponedecachloroc-tahydro-	I (0.454)
Lasiocarpine	10 (4.54)
Lead cents	10 (4.54)
Lead acetate	10 (4.54)
Lead arsenate	1 (0.454)
Lead, bis(acetato-O)tetrahydroxytri	10 (4.54)
Lead chloride	10 (4.54)
Lead fluoborate	10 (4.54)
Lead fluoride	10 (4.54)
Lead iodide	10 (4.54)
Lead nitrate	10 (4.54)
Lead phosphate	10 (4.54)
Lead stearate	10 (4.54)
Lead subacetate	10 (4.54)
Lead sulfate	10 (4.54)
Lead sulfide	10 (4.54)
Lead thiocyanate	10 (4.54)
Lindane	1 (0.454)
Lithium chromate	10 (4.54)
Malathion	100 (45.4)
Maleic acid	5000 (2270)
Maleic anhydride	5000 (2270)
Maleic hydrazide	5000 (2270)
Malononitrile	1000 (454)
MDI	5000 (2270)
Melphalan	1 (0.454)
Mercaptodimethur	10 (4.54)
Mercuric cyanide	I (0.454)
Mercuric nitrate	10 (4.54)
Mercuric sulfate	10 (4.54)
	10 (4.54)
Mercuric thiocyanate	10 (4.54)
Mercurous nitrate	1 (0.454)
Mercury	100 (45.4)
Mercury, (acetato-O)phenyl-	10 (4.54)
Mercury fulminate	100 (454)
Methacrylonitrile	
Methanamine, N-methyl-	1000 (454)
Methanamine, N-methyl-N-nitroso	10 (4.54)
Methane, bromo-	1000 (454)
Methane, chloro-	100 (45.4)
Methane, chloromethoxy-	1 (0.454)
Methane, dibromo-	1000 (454)
Methane, dichloro-	1000 (454)
Methane, dichlorodifluoro-	5000 (2270)
Methane, iodo-	100 (45.4)
Methane, isocyanato-	10 (4.54)
Methane, oxybis(chloro-	1 (0.454)
Methane, tetrachloro-	10 (4.54)
Methane, tetránitro-	10 (4.54)

Methane, tribromo-	100 (45.4)
Methane, trichloro-	100 (45.4)
Methane, trichlorofluoro-	. 10 (4.54)
Methanesulfenyl chloride, trichloro-	5000 (2270)
Methanesulfonic acid, ethyl ester	100 (45.4)
Methanethiol	1 (0.454)
	100 (45.4)
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-	1 (0.454)
hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide Methanoic acid	5000 (2270)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-	5000 (2270)
a,4,7,7a-tetrahydro-	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-octachloro-	I (0.454)
2,3,3a,4,7,7a-hexahydro-	1 (0.434)
Methanol	5000 (2270)
Methapyrilene	5000 (2270)
1,3,4-Metheno-2H-cyclobutal[cd]-pentalen-2-one,	1 (0.454)
1,1a,3,3a,4,5,5,5a,5b,6-decachloroctahydro-	1 (0.434)
Methomyl	100 (45.4)
Methoxychlor	1 (0.454)
Methyl alcohol	5000 (2270)
Methylamine @	100 (45.4)
Methyl bromide	100 (454)
1-Methylbutadiene	100 (45.4)
Methyl chloride	100 (45.4)
Methyl chlorocarbonate	100 (454)
Methyl chloroform	1000 (454)
Methyl chloroformate	1000 (454)
Methylchloromethyl ether @	1 (0.454)
3-Methylcholanthrene	10 (4.54)
4,4'-Methylenebis(2-chloroaniline)	10 (4.54)
Methylene bromide	1000 (454)
Methylene chloride	1000 (454)
4,4'-Methylenedianiline	10 (4.54)
Methylene diphenyl diisocyanate	5000 (2270)
Methylene oxide	100 (45.4)
Methyl ethyl ketone (MEK)	5000 (2270)
Mathul athul listons marguide	10 (4.54)
Methyl hydrazine	10 (4.54)
Methyl iodide	100 (45.4)
Methyl isobutyl ketone	5000 (2270)
Methyl isocyanate	10 (4.54)
2-Methyllactonitrile	10 (4.54)
Methyl mercaptan	100 (45.4)
Methyl methacrylate	1000 (454)
Methyl parathion	100 (45.4)
4-Methyl-2-pentanone	5000 (2270)
Methyl tert-butyl ether	1000 (454)
Methylthiouracil	10 (4.54)
Mevinphos	10 (4.54)
Mexacarbate	1000 (454)
Mitomycin C	10 (4.54)
MNNG	10 (4.54)
Monoethylamine	100 (45.4)
Monomethylamine	100 (45.4)
Muscimol	1000 (454)
Naled	10 (4.54)
5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6-	10 (4.54)
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trideoxy-alpha-L-lyxo-hexopyranosyl) oxy]-7,8,9,10-	
tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	100 (45.4)
Naphthalenamine, N,N-bis(2-chloroethyl)-	100 (45.4)
Naphthalene	5000 (2270)
Naphthalene, 2-chloro-	5000 (2270)
1,4-Naphthalenedione	10 (4.54)
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-	10 (4.34)
(l,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-	
tetrasodium salt	100 (45.4)
Naphthenic acid	5000 (2270)
1,4-Naphthoquinone	100 (45.4)
alpha-Naphthylamine	
beta-Naphthylamine	1 (0.454) 100 (45.4)
1-Naphthylamine	
2-Naphthylamine	I (0.454)
alpha-Naphthylthiourea	100 (45.4)
Nickel cents	100 (45.4)
Nickel ammonium sulfate	100 (45.4)
Nickel carbonyl	10 (4.54)
Nickel carbonyl Ni(CO)4,(T-4)-	10 (4.54)
Nickel chloride	100 (45.4)
Nickel cyanide	10 (4.54)
Nickel cyanide Ni(CN)2	10 (4.54)
Nickel hydroxide	10 (4.54)
Nickel nitrate	100 (45.4)
Nickel sulfate	100 (45.4)
Nicotine and salts	100 (45.4)
Nitric acid	1000 (454)
Nitric acid, thallium(1+) salt	100 (45.4)
Nitric oxide	10 (4.54)
p-Nitroaniline	5000 (2270)
Nitrobenzene	1000 (454)
4-nitrobiphenyl	10 (4.54)
Nitrogen dioxide	10 (4.54)
Nitrogen oxide NO	10 (4.54)
Nitrogen oxide NO2	10 (4.54)
Nitroglycerine	10 (4.54)
Nitrophenol (mixed)	100 (45.4)
m-	
0-	
p-	`
o-Nitrophenol	100 (45.4)
p-Nitrophenol	100 (45.4)
2-Nitrophenol	100 (45.4)
4-Nitrophenol	100 (45.4)
2-Nitropropane	10 (4.54)
N-Nitrosodi-n-butylamine	10 (4.54)
N-Nitrosodiethanolamine	I (0.454)
N-Nitrosodiethylamine	1 (0.454)
N-Nitrosodimethylamine	10 (4.54)
N-Nitrosodiphenylamine	100 (45.4)
N-Nitroso-N-ethylurea	1 (0.454)
N-Nitroso-N-methylurea	1 (0.454)
N-Nitroso-N-methylurethane	1 (0.454)
N-Nitrosomethylvinylamine	10 (4.54)
n-Nitrosomorpholine 15 23	1 (0.454)
N-Nitrosopiperidine	10 (4.54)

NT NT'	
N-Nitrosopyrrolidine	1 (0.454)
Nitrotoluene	1000 (4.54)
m-Nitrotoluene	1000 (4.54)
o-Nitrotoluene	1000 (4.54)
p-Nitrotoluene	1000 (4.54)
5-Nitro-o-toluidine	100 (45.4)
Octamethylpyrophosphoramide	100 (45.4)
Osmium oxide OsO4 (T-4)-	1000 (454)
Osmium tetroxide	1000 (454)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	1000 (454)
·1,2-Oxathiolane, 2,2-dioxide	10 (4.54)
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-	10 (4.54)
chloroethyl)tetrahydro-, 2-oxide	
Oxirane	10 (4.54)
Oxiranecarboxyaldehyde	10 (4.54)
Oxirane, (chloromethyl)-	100 (45.4)
Paraformaldehyde	1000 (454)
Paraldehyde	1000 (454)
Parathion	10 (4.54)
Pentachlorobenzene	10 (4.54)
Pentachloroethane	10 (4.54)
Pentachloronitrobenzene (PCNB)	100 (45.4)
Pentachlorophenol	10 (4.54)
1,3-Pentadiene	100 (45.4)
Perchloroethylene	100 (45.4)
Perchloromethyl mercaptan @	100 (45.4)
Phenacetin	100 (45.4)
Phenanthrene.	5000 (2270)
Phenol	1000 (454)
Phenol, 2-chloro-	100 (45.4)
Phenol, 4-chloro-3-methyl-	5000 (2270)
Phenol, 2-cyclohexyl-4,6-dinitro-	100 (45.4)
Phenol, 2,4-dichloro-	100 (45.4)
Phenol, 2,6-dichloro-	100 (45.4)
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	1 (0.454)
Phenol, 2,4-dimethyl-	100 (45.4)
Phenol, 2,4-dinitro-	10 (4.54)
Phenol, methyl-	100 (45.4)
Phenol, 2-methyl-4,6-dinitro-	10 (4.54)
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	100 (45.4)
Phenol, 2-(1-methylpropyl)-4,6-dinitro	1000 (454)
Phenol, 4-nitro-	100 (45.4)
Phenol, pentachloro-	10 (4.54)
Phenol, 2,3,4,6-tetrachloro-	10 (4.54)
Phenol, 2,4,5-trichloro	10 (4.54)
Phenol, 2,4,6-trichloro-	10 (4.54)
Phenol, 2,4,6-trinitro-, ammonium salt	10 (4.54)
L-Phenylalanine, 4-[bis(2-chloroethyl)aminol]	I (0.454)
p-Phenylenedimine	5000 (2270)
1,10-(1,2-Phenylene)pyrene	100 (45.4)
Phenyl mercaptan @	100 (45.4)
Phenylmercuric acetate	100 (45.4)
Phenylthiourea	100 (45.4)
Phorate Phorate	10 (4.54)
Phosgene .	10 (4.54)
Phosphine	100 (45.4)

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Phosphoric acid	5000 (2270)
Phosphoric acid, diethyl 4-nitrophenyl ester	100 (45.4)
Phosphoric acid, lead(2+) salt (2:3)	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	1 (0.454)
Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-methyl ester	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2 (methylamino)-2-oxoethyl] ester	10 (4.54)
Phosphorofluoridic acid, bis(1-methylethyl) ester	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	10 (4.54)
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	100 (45.4)
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	100 (45.4)
Phosphorothioic acid, O,[4-[(dimethylamino)sulfonyl] phenyl] O,O-dimethyl ester	1000 (454)
Phosphorus .	1 (0.454)
Phosphorus oxychloride	1000 (454)
Phosphorus pentasulfide	100 (45.4)
Phosphorus sulfide	100 (45.4)
Phosphorus trichloride	1000 (454)
Phthalic anhydride	5000 (2270)
2-Picoline	5000 (2270)
Piperidine, 1-nitroso-	10 (4.54)
Plumbane, tetraethyl-	10 (4.54)
POLYCHLORINATED BIPHENYLS (PCBs)	1 (0.454)
Potassium arsenate	1 (0.454)
Potassium arsenite	I (0.454)
Potassium bichromate	10 (4.54)
Potassium chromate	10 (4.54)
Potassium cyanide	10 (4.54)
Potassium cyanide K(CN)	10 (4.54)
Potassium hydroxide	1000 (454)
Potassium permanganate	100 (45.4)
Potassium silver cyanide	1 (0.454)
Pronamide	5000 (2270)
Propanal, 2-methyl-2-(methylthio)-,O- [(methylamino)carbonyl]oxime	1 (0.454)
1-Propanamine	5000 (2270)
1-Propanamine, N-nitroso-N-propyl-	10 (4.54)
1-Propanamine, N-propyl-	5000 (2270)
Propane, 1,2-dibromo-3-chloro-	1 (0.454)
Propane, 1,2-dichloro-	1000 (454)
Propane, 2-nitro-	10 (4.54)
Propane, 2,2'-oxybis [2-chloro-	1000 (454)
1,3-Propane sultone	10 (4.54)
Propanedinitrile	1000 (454)
Propanenitrile (**)	10 (4.54)
Propanenitrile, 3-chloro-	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl-	10 (4.54)
1,2,3-Propanetriol, trinitrate-	10 (4.54)
1-Propanol, 2,3-dibromo-, phosphate (3:1)	10 (4.54)
1-Propanol, 2-methyl-	5000 (2270)
2-Propanone	5000 (2270)
2-Propanone, 1-bromo-	1000 (454)

Propargite	10 (4.54)
Propargyl alcohol	1000 (454)
2-Propenal	1 (0.454)
2-Propenamide	
1-Propene, 1,3-dichloro-	5000 (2270)
	100 (45.4)
1-Propene, 1,1,2,3,3,3-hexachloro-	1000 (454)
2-Propenenitrile	100 (45.4)
2-Propenenitrile, 2-methyl-	1000 (454)
2-Propenoic acid	5000 (2270)
2-Propenoic acid, ethyl ester	1000 (454)
2-Propenoic acid, 2-methyl-, ethyl ester	1000 (454)
2-Propenoic acid, 2-methyl-, methyl ester	1000 (454)
2-Propen-1-ol	100 (45.4)
beta-Propioaldehyde	1000 (454)
Propionic acid	5000 (2270)
Propionic acid, 2-(2,4,5-trichlorophenoxy)-	100 (45.4)
Propionic anhydride	5000 (2270)
Propoxur (baygon)	100 (45.4)
n-Propylamine	5000 (2270)
Propylene dichloride	1000 (454)
Propylene oxide	100 (45.4)
1,2-Propylenimine	1 (0.454)
2-Propyn-1-ol	1000 (454)
Pyrene	5000 (2270)
Pyrethrins	1 (0.454)
3,6-Pyridazinedione, 1,2-dihydro-	5000 (2270)
4-Pyridinamine	1000 (454)
Pyridine	}
Pyridine, 2-methyl-	1000 (454)
<u> </u>	5000 (2270)
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)	100 (45.4)
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	10 (4.54)
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	10 (4.54)
Pyrrolidine, 1-nitroso-	1 (0.454)
Quinoline	5000 (2270)
RADIONUCLIDES	See Appendix 4
Reserpine	5000 (2270)
	1
Resorcinol	5000 (2270)
Saccharin and salts	5000 (2270) 100 (45.4)
Saccharin and salts Safrole	5000 (2270)
Saccharin and salts Safrole Selenious acid	5000 (2270) 100 (45.4)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt	5000 (2270) 100 (45.4) 100 (45.4)
Saccharin and salts Safrole Selenious acid	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 1000 (454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 1000 (45.4) 100 (45.4) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 1000 (45.4) 100 (45.4) 10 (4.54) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 1000 (454) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide Selenium sulfide SeS2	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 1000 (454) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 1000 (45.4) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 100 (45.4) 1000 (45.4) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide Selenium sulfide Selenium sulfide SeS2 Selenourea L-Serine, diazoacetate (ester) Silver cents	5000 (2270) 100 (45.4) 100 (45.4) 10 (4.54) 100 (45.4) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 1000 (454) 1 (0.454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 10 (45.4) 100 (45.4) 100 (45.4) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (0.454) 1 (0.454) 1 (0.454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 10 (45.4) 100 (45.4) 100 (45.4) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 1000 (454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide Selenium sulfide Selenium sulfide SeS2 Selenourea L-Serine, diazoacetate (ester) Silver cents Silver cyanide Silver cyanide Ag(CN) Silver nitrate	5000 (2270) 100 (45.4) 100 (45.4) 10 (45.4) 10 (45.4) 100 (45.4) 10 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 1000 (454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 10 (45.4) 100 (45.4) 1000 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 1000 (454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 100 (45.4) 100 (45.4) 100 (45.4) 100 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454)
Saccharin and salts Safrole Selenious acid Selenious acid, dithallium(1+) salt Selenium cents Selenium dioxide Selenium oxide Selenium sulfide	5000 (2270) 100 (45.4) 100 (45.4) 10 (45.4) 100 (45.4) 1000 (45.4) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 10 (4.54) 1000 (454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454) 1 (0.454)

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0.11	1000 (454)
Sodium azide	10 (4.54)
Sodium bichromate	100 (45.4)
Sodium bifluoride	5000 (2270)
Sodium bisulfite	10 (4.54)
Sodium chromate	10 (4.54)
Sodium cyanide	10 (4.54)
Sodium cyanide Na(CN)	1000 (454)
Sodium dodecylbenzene sulfonate	1000 (151)
Sodium fluoride	5000 (2270)
Sodium hydrosulfide	1000 (454)
Sodium hydroxide	
Sodium hypochlorite	100 (45.4)
Sodium methylate	1000 (454)
Sodium nitrite .	100 (45.4)
Sodium phosphate, dibasic	5000 (2270)
Sodium phosphate, tribasic .	5000 (2270)
Sodium selenite	100 (45.4)
Streptozotocin	1 (0.454)
Strontium chromate	10 (4.54)
Strychnidin-10-one	10 (4.54)
Strychnidin-10-one, 2,3-dimethoxy-	100 (45.4)
Strychnine and salts	10 (4.54)
Styrene	1000 (454)
Styrene oxide	100 (45.4)
Sulfur chloride @	1000 (454)
Sulfur monochloride	1000 (454)
Sulfur phosphide	100 (45.4)
Sulfuric acid	1000 (454)
Sulfuric acid, dimethyl ester	100 (45.4)
Sulfuric acid, dithallium(I+) salt	100 (45.4)
2,4,5-T	1000 (454)
2,4,5-T acid	1000 (454)
2,4,5-T amines	5000 (2270)
2,4,5-T esters	1000 (454)
2,4,5-T salts	1000 (454)
TDE	1 (0.454)
1,2,4,5-Tetrachlorobenzene	5000 (2270)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1 (0.454)
1,1,1,2-Tetrachloroethane	100 (45.4)
1,1,2-Tetrachloroethane	100 (45.4)
iii	100 (45.4)
Tetrachloroethane @ Tetrachloroethene	100 (45.4)
	100 (45.4)
Tetrachloroethylene	10 (4.54)
2,3,4,6-Tetrachlorophenol	10 (4.54)
Tetraethyl lead	10 (4.54)
Tetraethyl pyrophosphate	100 (45.4)
Tetraethyldithiopyrophosphate	100 (45.4)
Tetrahydrofuran	10 (4.54)
Tetranitromethane	
Tetraphosphoric acid, hexaethyl ester	100 (45.4)
Thallic oxide.	100 (45.4)
Thallium cents	1000 (454)
Thallium(I) acetate	100 (45.4)
Thallium(I) carbonate	100 (45.4)
Thallium(I) chloride	100 (45.4)
Thallium chloride TlCl	100 (45.4)

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Thallium(I) nitrate	100 (45.4)
Thallium oxide T1203	100 (45.4)
Thallium selenite	1000 (454)
Thallium(I) sulfate	100 (45.4)
Thioacetamide	10 (4.54)
Thiodiphosphoric acid, tetraethyl ester	100 (45.4)
Thiofanox	100 (45.4)
Thioimidodicarbonic diamide [(H2N)C(S)]2NH	100 (45.4)
Thiomethanol	100 (45.4)
Thioperoxydicarbonic diamide [(H2N)C(S)]2S2, tetramethyl-	10 (4.54)
Thiophenol	100 (45.4)
Thiosemicarbazide	100 (45.4)
Thiourea	10 (4.54)
Thiourea, (2-chlorophenyl)-	100 (45.4)
Thiourea, 1-naphthalenyl-	100 (45.4)
Thiourea, phenyl-	100 (45.4)
Thiram	10 (4.54)
Titanium tetrachloride	1000 (454)
Toluene	1000 (454)
Toluenediamine	10 (4.54)
Toluene diisocyanate	100 (45.4)
o-Toluidine	100 (45.4)
p-Toluidine	100 (45.4)
o-Toluidine hydrochloride	<u> </u>
Toxaphene	100 (45.4)
J	1 (0.454)
2,4,5-TP acid	100 (45.4)
2,4,5-TP acid esters	100 (45.4)
1H-1,2,4-Triazol-3-amine	10 (4.54)
Trichlorfon	100 (45.4)
1,2,4-Trichlorobenzene	100 (45.4)
1,1,1-Trichloroethane	1000 (454)
1,1,2-Trichloroethane	100 (45.4)
Trichloroethene	100 (45.4)
Trichloroethylene	100 (45.4)
Trichloromethanesulfenyl chloride	100 (45.4)
Trichloromonofluoromethane	5000 (2270)
Trichlorophenol	10 (4.54)
2,3,4-Trichlorophenol	
2,3,5-Trichlorophenol	
2,3,6-Trichlorophenol	
2,4,5-Trichlorophenol	
2,4,6-Trichlorophenol	
3,4,5-Trichlorophenol	
2,4,5-Trichlorophenol	10 (4.54)
2,4,6-Trichlorophenol	10 (4.54)
Triethanolamine dodecylbenzene sulfonate	1000 (454)
Triethylamine	5000 (2270)
Trifluralin	10 (4.54)
Trimethylamine	100 (45.4)
2,2,4-Trimethylpentane	1000 (454)
1,3,5-Trinitrobenzene	10 (4.54)
1,3,5-Trioxane, 2,4,6-trimethyl-	1000 (454)
Tris(2,3-dibromopropyl) phosphate	10 (4.54)
Trypan blue	10 (4.54)
Uracil mustard	10 (4.54)
Uranyl acetate	100 (45.4)
Uranyl nitrate	100 (45.4)
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Urea, N-ethyl-N-nitroso-	I (0.454)
Urea, N-methyl-N-nitroso-	1 (0.454)
Vanadic acid, ammonium salt	1000 (454)
Vanadium oxide V205	1000 (454)
Vanadium pentoxide	1000 (454)
Vanadyl sulfate	1000 (454)
	5000 (2270)
Vinyl acetate manager	5000 (2270)
Vinyl acetate monomer Vinylamine, N-methyl-N-nitroso-	10 (4.54)
Vinyl bromide	100 (45.4)
	1 (0.454)
Vinyl chloride	100 (45.4)
Vinylidene chloride	100 (45.4)
Warfarin, & salts, when present at concentrations greater than 0.3%	
Xylene	100 (45.4)
m-Xylene	1000 (454)
o-Xylene	1000 (454)
p-Xylene	100 (45.4)
Xylene (mixed)	100 (45.4)
Xylenes (isomers and mixture)	100 (45.4)
Xylenol	1000 (454)
Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3,4,5-	5000 (2270)
trimethoxybenzoyl)oxy]-, methyl ester	
(3beta,16beta,17alpha,18beta,20alpha)	
Zinc cents	1000 (454)
Zinc acetate	1000 (454)
Zinc ammonium chloride	1000 (454)
Zinc borate	1000 (454)
Zinc bromide	1000 (454)
Zinc carbonate	1000 (454)
Zinc chloride	1000 (454)
Zinc cyanide	10 (4.54)
Zinc cyanide Zn(CN)2	10 (4.54)
Zinc fluoride	1000 (454)
Zinc formate	1000 (454)
Zinc hydrosulfite	1000 (454)
Zinc nitrate	1000 (454)
Zinc phenolsulfonate	5000 (2270)
Zinc phosphide	100 (45.4)
Zinc phosphide Zn3P2, when present at concentrations	100 (45.4)
greater than 10%	
Zinc silicofluoride	5000 (2270)
Zinc sulfate	1000 (454)
Zirconium nitrate	5000 (2270)
Zirconium potassium fluoride	1000 (454)
Zirconium sulfate	5000 (2270)
Zirconium tetrachloride	5000 (2270)
Ziromani tendemondo	

D001 Unlisted Hazardous Wastes Characteristic of	100 (45.4)
Ignitability (1) 14 (3) D002 Unlisted Hazardous Wastes Characteristic of	100 (45.4)
Corrosivity D003 Unlisted Hazardous Wastes Characteristic of	100 (45.4)
Reactivity	100 (43.4)

D004-D043 Unlisted Hazardous Wastes Characteristic of Toxicity		
D004 Arsenic	1 (0.454)	
D005 Barium	1000 (454)	
D006 Cadmium	10 (4.54)	
D007 Chromium	10 (4.54)	
D008 Lead	10 (4.54)	
D009 Mercury	1 (0.454)	
D010 Selenium	10 (4.54)	
D011 Silver	1 (0.454)	
D012 Endrin	1 (0.454)	
D013 Lindane	1 (0.454)	
D014 Methoxychlor	1 (0.454)	
D015 Toxaphene	1 (0.454)	
D016 2,4-D	100 (45.4)	
D017 2,4,5-TP	100 (45.4)	
D018 Benzene	10 (4.54)	
D019 Carbon tetrachloride	10 (4.54)	
D020 Chlordane	1 (0.454)	
D021 Chlorobenzene	100 (45.4)	
D022 Chloroform	10 (4.54)	
D023 o-Cresol	100 (45.4)	
D024 m-Cresol	100 (45.4)	
D025 p-Cresol	100 (45.4)	
D026 Cresol	100 (45.4)	
D027 1,4-Dichlorobenzene	100 (45.4)	
D028 1,2-Dichloroethane	100 (45.4)	
D029 1,1-Dichloroethylene	100 (45.4)	
D030 2,4-Dinitrotoluene	10 (4.54)	
D031 Heptachlor (and hydroxide)	1 (0.454)	
D032 Hexachlorobenzene	10 (4.54)	
D033 Hexachlorobutadiene	1 (0.454)	
D034 Hexachloroethane	100 (45.4)	
D035 Methyl ethyl ketone	5000 (2270)	
D036 Nitrobenzene	1000 (454)	
D037 Pentachlorophenol	10 (4.54)	
D038 Pyridine	1000 (454)	
D039 Tetrachloroethylene	100 (45.4)	
D040 Tricholorethylene	100 (45.4)	
D041 2,4,5-Trichlorophenol	10 (4.54)	
D042 2,4,6-Trichlorophenol	10 (4.54)	
D043 Vinyl chloride	1 (0.454)	

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F001	10 (4.54)	
mi s il a sing amont halogopated solvents used in de	greasing, all spent solvent mixtures/blends used in degreasing	g containing,
before use a total of ten percent or more (by volume	e) of one or more of the below listed halogenated solvents or	those solvents
tiered in E002 E004 and E005; and still bottoms from	n the recovery of these spent solvents and spent solvent	
mixtures(a) Tetrachloroethylene	100 (45.4)	
(a) Tetrachioroemytehe	100 (45.4)	
(b) Trichloroethylene	1000 (45.4)	
(c) Methylene chloride		
(d) 1,1,1-Trichloroethane	1000 (454)	
(e) Carbon tetrachloride	10 (4.54)	
(f) Chlorinated fluorocarbons	5000 (2270)	
F002	10 (4.54)	
The following spent halogenated solvents; all spent	solvent mixtures/blends containing, before use, a total of ten	percent or
more (by volume) of one or more of the below listed	I halogenated solvents or those listed in FUU1, FUU4, FUU5; a	nd still
bottoms from the recovery of these spent solvents an	nd spent solvent mixtures	
(a) Tetrachloroethylene	100 (45.4)	
(b) Methylene chloride	1000 (454)	•
	100 (45.4)	
(c) Trichloroethylene	1000 (454)	
(d) 1,1,1-Trichloroethane	·	
(e) Chlorobenzene	100 (45.4)	
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	5000 (2270)	
(g) o-Dichlorobenzene	100 (45.4)	
(h) Trichlorofluoromethane	5000 (2270)	
(i) 1,1,2 Trichloroethane	100 (45.4)	
(-) -, ,		
F003	100 (45.4)	
The following spent non-halogenated solvents and s	colvents:	
(a) Xylene	1000 (454)	
	5000 (2270)	
(b) Acetone	5000 (2270)	
(c) Ethyl acetate	1000 (454)	
(d) Ethylbenzene	·	
(e) Ethyl ether	100 (45.4)	
(f) Methyl isobutyl ketone	5000 (2270)	
(g) n-Butyl alcohol	5000 (2270)	
(h) Cyclohexanone	5000 (2270)	
(i) Methanol	5000 (2270)	
F004	100 (45.4)	
The following spent non-halogenated solvents and	the still bottoms from the recovery of these solvents:	
(a) Cresols/Cresylic acid	1000 (454)	
(b) Nitrobenzene	100 (45.4)	
(0) 111110001120110	100 (101.1)	
F005	100 (45.4)	
TOUS belorgered golvents and		•
The following spent non-halogenated solvents and	1000 (45.4)	
(a) Toluene	1000 (454)	
(b) Methyl ethyl ketone	5000 (2270)	
(c) Carbon disulfide	100 (45.4)	
(d) Isobutanol	5000 (2270)	
(e) Pyridine	1000 (454)	
F006	10 (4.54)	
Wastewater treatment sludges from electroplating of	operations except from the following processes: (1) sulfuric a	cid anodizing
of aluminum. (2) tin plating on carbon steel, (3) zir	nc plating (segregated basis) on carbonsteel, (4) aluminum or	zinc-aluminur
plating on carbon steel. (5) cleaning/stripping association	ciated with tin, zinc and aluminum plating on carbon steel, as	1d (6) chemical
etching and milling of aluminum		· /
٠٠٠٠٠ و		
F00710 (4.54)	·)	
Spent cyanide plating bath solutions from electropl		
		<i></i>
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F008	
Plating bath residues from the bottom of plating baths from electroplating operations whe	ere cyanides are used in the
F009	s are used in the
F010	es are used in the
F011	xcept for precious metals heat treating
F012	des are used in the
F019	ot from zirconium phosphating in s.
F020	rachlorophenol, or of intermediates
F021	e production or manufacturing use prophenol, or of intermediates used to
F022	e manufacturing use (as a reactant; lorobenzenes under alkaline
F023	al intermediate, or component in a rom equipment used only for the
F024	adical catalyzed processes. (This
F025	drocarbons are those having a for

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equipment previously used for the manu	1 (0.454) rbon from hydrogen chloride purification) from the production of materials on facturing use (as a reactant, chemical intermediate, or component in a formulating penzene under alkaline conditions
compounds derived from these chloroph	1 (0.454) ng tri-, tetra-, or pentachlorophenol or discarded unused formulations containing nenols. (This listing does not include formulations containing hexachlorophene lorophenol as the sole component.)
F028the form the incincention	1 (0.454) or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021,
F022, F023, F026, and F027	of thermal treatment of son contaminated with Errizable to the son contaminated
F032	1 (0.454)
F034	1 (0.454)
F035	1 (0.454)
F037	1 (0.454)
F038	1 (0.454)
F039	1 (0.454)

List of Hazardous Substances and Reportable Quantities

Appendix 4--Radionuclides

Radionuclide	Atomic	Reportable Quantitiy(RQ)
	Numbe	er Ci (TBq)
Actinium-224	89	100 (3.7)
Actinium-225	89	1 (.037)
Actinium-226	89	10 (.37)
Actinium-227	89	0.001 (.000037)
Actinium-228	89	10 (.37)
Aluminum-26	13	10 (.37)
Americium-237	95	1000 (37)
Americium-238	95	100 (3.7)
Americium-239	95	100 (3.7)
Americium-240	95	10 (.37)
Americium-241	95	0.01 (.00037)
Americium-242	95	100 (3.7)
Americium-242m		0.01 (.00037)
Americium-243	95	0.01 (.00037)
Americium-244	95	,
Americium-244m	95 95	10 (.37)
Americium-245	95 95	1000 (37)
Americium-246		1000 (37)
Americium-246m	95	1000 (37)
		1000 (37)
Antimony 116	51	1000 (37)
Antimony-116	51	1000 (37)
Antimony-116m	51	100 (3.7)
Antimony-117	51	1000 (37)
Antimony-118m	51	10 (.37)
Antimony-119	51	1000 (37)
Antimony-120 (16 min)	51	1000 (37)
Antimony-120 (5.76 day)	51	10 (.37)
Antimony-122	51	10 (.37)
Antimony-124	51	10 (.37)
Antimony-124m	51	1000 (37)
Antimony-125	51	10 (.37)
Antimony-126	51	10 (.37)
Antimony-126m	51	1000 (37)
Antimony-127	51	10 (.37)
Antimony-128 (10.4 min)	51	1000 (37)
Antimony-128 (9.01 hr)	51	10 (.37)
Antimony-129	51	100 (3.7)
Antimony-130	51	100 (3.7)
Antimony-131	51	1000 (37)
Argon-39	18	1000 (37)
Argon-41	18	10 (.37)
Arsenic-69	33	1000 (37)
Arsenic-70	33	100 (3.7)
Arsenic-71	33	100 (3.7)
Arsenic-72	33	10 (.37)
Arsenic-73		100 (3.7)
Arsenic-74	33	10 (3.7)
Arsenic-76	33	10 (.37)
Arsenic-77	33	
Arsenic-78	33	1000 (37)
Astatine-207	85	100 (3.7)
4 101011110-40/	03	100 (3.7)

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Astatine-211	85	100 (3.7)
Barium-126	56	1000 (37)
Barium-128	56	10 (.37)
Barium-131	-56	10 (.37)
Barium-131m	56	1000 (37)
Barium-131	56	10 (.37)
Barium-133	56	100 (3.7)
Barium-135m	56	1000 (37)
Barium-139	56	1000 (37)
Barium-140	56	10 (.37)
Barium-141	56	1000 (37)
Barium-142	56	1000 (37)
Berkelium-245	97	100 (3.7)
Berkelium-246	97	10 (.37)
Berkelium-247	97	0.01 (.00037)
Berkelium-249	97	1 (.037)
Berkelium-250	97	100 (3.7)
	4	1 (.037)
Beryllium-10	4	100 (3.7)
Beryllium-7	83	100 (3.7)
Bismuth-200	83	100 (3.7)
Bismuth-201	83	100 (3.7)
Bismuth-202	83	10 (.37)
Bismuth-203	83	10 (.37)
Bismuth-205	83	10 (.37)
Bismuth-206	83	10 (.37)
Bismuth-207	83	10 (.37)
Bismuth-210		0.1 (.0037)
Bismuth-210m	83	100 (3.7)
Bismuth-212	83	100 (3.7)
Bismuth-213	83 83	100 (3.7)
Bismuth-214	35	100(3.7)
Bromine-74	35 35	
Bromine-74m	35 35	100 (3.7) 100 (3.7)
Bromine-75		
Bromine-76	35	10 (.37)
Bromine-77	35	100 (3.7)
Bromine-80	35	1000 (37)
Bromine-80m	35	1000 (37)
Bromine-82	35	10 (.37)
Bromine-83	35	1000 (37)
Bromine-84	35	100 (3.7)
Cadmium-104	48	1000 (37)
Cadmium-107	48	1000 (37)
Cadmium-109	48	1 (.037)
Cadmium-113	48	0.1 (.0037)
Cadmium-113m		0.1 (.0037)
Cadmium-115	48	100 (3.7)
Cadmium-115m		10 (.37)
Cadmium-117	48	100 (3.7)
Cadmium-117m		10 (.37)
Calcium-41	20	10 (.37)
Calcium-45	20	10 (.37)
Calcium-47	20	10 (.37)
Californium-244	98	1000 (37)
Californium-246	98	10 (.37)
Californium-248	98	0.1 (.0037)
Californium-249	98	0.01 (.00037
Californium-250	98	0.01 (.00037
Californium-251	98	0.01 (.00037

Californium 251 98 0.01 (.00037)
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Californium-252	98	0.1 (.0037)
Californium-253	98	10 (.37)
Californium-254	98	0.1 (.0037)
Carbon-11	6	1000 (37)
Carbon-14	6	10 (.37)
Cerium-134	58	10 (.37)
Cerium-135	58	10 (.37)
Cerium-137	58	1000 (37)
Cerium-137m	58	100 (3.7)
Cerium-139	58	100 (3.7)
Cerium-141	58	10 (.37)
Cerium-143	58	100 (3.7)
Cerium-144	58	1 (.037)
Cesium-125	55	1000 (37)
Cesium-127	55	100 (3.7)
Cesium-129	55	100 (3.7)
Cesium-130	55	1000 (37)
Cesium-131	55	1000 (37)
Cesium-132	55	10 (.37)
Cesium-134	55	1 (.037)
Cesium-134m	55	1000 (37)
Cesium-135	55	10 (.37)
Cesium-135m	55	100 (3.7)
Cesium-136	55	10 (.37)
Cesium-137	55	1 (.037)
Cesium-138	55	100 (3.7)
Chlorine-36	17	10 (.37)
Chlorine-38	17	100 (3.7)
Chlorine-39	17	100 (3.7)
Chromium-48	24	100 (3.7)
Chromium-49	24	1000 (37)
Chromium-51	24	1000 (37)
Cobalt-55	27	10 (.37)
Cobalt-56	27	10 (.37)
Cobalt-57	27	100 (3.7)
Cobalt-58	27	10 (.37)
Cobalt-58m	27	1000 (37)
Cobalt-60	27	10 (.37)
Cobalt-60m	27	1000 (37)
Cobalt-61	27	1000 (37)
Cobalt-62m	27	1000 (37)
Copper-60	29	100 (3.7)
Copper-61	29	100 (3.7)
Copper-64	29	1000 (37)
Copper-67	29	100 (3.7)
Curium-238	96	1000 (37)
Curium-240	96	1 (.037)
Curium-241	96	10 (.37)
Curium-242	96	1 (.037)
Curium-243	96	0.01 (.00037)
Curium-244 .:	96	0.01 (.00037)
Curium-245	96	0.01 (.00037)
Curium-246	96	0.01 (.00037)
Curium-247	96	0.01 (.00037)
Curium-248	96	0.001 (.000037)
Curium-249	96	1000 (37)
Dysprosium-155	66	100 (3.7)
Dysprosium-157	66	100 (3.7)
Dysprosium-159	66	100 (3.7)
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Dysprosium-165	66	1000 (37)
Dysprosium-166	66	10 (.37)
Einsteinium-250	99	10 (.37)
Einsteinium-251	99	1000 (37)
Einsteinium-253	99	10 (.37)
Einsteinium-254	99	0.1 (.0037)
Einsteinium-254m	99	1 (.037)
Erbium-161	68	100 (3.7)
Erbium-165	68	1000 (37)
Erbium-169	68	100 (3.7)
Erbium-171	68	100 (3.7)
Erbium-172	68	10 (.37)
Europium-145 /	63	10 (.37)
	63	10 (.37)
Europium-146	63	10 (.37)
Europium-147	63	10 (.37)
Europium-148	63	100 (3.7)
Europium-149	63	100 (3.7)
Europium-150 (12.6 hr)		, ,
Europium-150 (34.2 yr)	63	10 (.3.7)
Europium-152	63	10 (.37)
Europium-152m	63	100 (3.7)
Europium-154	63	10 (.37)
Europium-155	63	10 (.37)
Europium-156	63	10 (.37)
Europium-157	63	10 (.37)
Europium-158	63	1000 (37)
Fermium-252	100	10 (.37)
Fermium-253	100	10 (.37)
Fermium-254	100	100 (3.7)
Fermium-255	100	100 (3.7)
Fermium-257	100	1 (.037)
Fluorine-18	9	1000 (37)
Francium-222	87	100 (3.7)
Francium-223	87	100 (3.7)
Gadolinium-145	64	100 (3.7)
Gadolinium-146	64	10 (.37)
Gadolinium-147	64	10 (.37)
Gadolinium-148	64	0.001 (.000037)
Gadolinium-149	64	100 (3.7)
Gadolinium-151	64	100 (3.7)
Gadolinium-152	64	0.001 (.000037)
Gadolinium-153	64	10 (.37)
Gadolinium-159	64	1000 (37)
Gallium-65	31	1000 (37)
Gallium-66	31	10 (.37)
Gallium-67	31	100 (3.7)
Gallium-68	31	1000 (37)
	31	1000 (37)
Gallium-70	31	
Gallium-72	31	10 (.37)
Gallium-73		100 (3.7)
Germanium-66	32	100 (3.7)
Germanium-67	32	1000 (37)
Germanium-68	32	10 (.37)
Germanium-69	32	10 (.37)
Germanium-71	32	1000 (37)
Germanium-75	32	1000 (37)
Germanium-77	32	10 (.37)
Germanium-78	32	1000 (37)
Gold-193	79	100 (3.7)
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Gold-194	79	10 (.37)
Gold-195	79	100 (3.7)
Gold-198	79	100 (3.7)
Gold-198m	79	
Gold-199	79	10 (.37)
Gold-200		100 (3.7)
Gold 200	79	1000 (37)
Gold-200m	79	10 (.37)
Gold-201	79	1000 (37)
Hafnium-170	72	100 (3.7)
Hafnium-172	72	1 (.037)
Hafnium-173	72	100 (3.7)
Hafnium-175	72	100 (3.7)
Hafnium-177m	72	1000 (37)
Hafnium-178m	72	0.1 (.0037)
Hafnium-179m	72	100 (3.7)
Hafnium-180m	72	
Hafnium-181		100 (3.7)
	72	10 (.37)
Hafnium-182	72	0.1 (.0037)
Hafnium-182m	72	100 (3.7)
Hafnium-183	72	100 (3.7)
Hafnium-184	72	100 (3.7)
Holmium-155	67	1000 (37)
Holmium-157	67	1000 (37)
Holmium-159	67	1000 (37)
Holmium-161	67	1000 (37)
Holmium-162	67	
Holmium-162m	67	1000 (37)
Holmium-164		1000 (37)
H-1	67	1000 (37)
Holmium-164m	67	1000 (37)
Holmium-166	67	100 (3.7)
Holmium-166m	67	1 (.037)
Holmium-167	67	100 (3.7)
Hydrogen-3	1	100 (3.7)
Indium-109	49	100 (3.7)
Indium-110 (4.9 hr)	49	10 (.37)
Indium-110 (69.1 min)	49	100 (3.7)
Indium-111	49	100 (3.7)
Indium-112	49	1000 (37)
Indium-113m	49	1000 (37)
Indium-114m	49	10 (.37)
Indium-115	49	
Indium-115m		0.1 (.0037)
Indium-116m	49	100 (3.7)
Indian 117	49	100 (3.7)
Indium-117	49	1000 (37)
Indium-117m	49	100 (3.7)
Indium-119m	49	1000 (37)
Iodine-120	53	10 (.37)
Iodine-120m	53	100 (3.7)
Iodine-121	53	100 (3.7)
Iodine-123	53	10 (.37)
Iodine-124	53	0.1 (.0037)
Iodine-125	53	0.01 (.00037)
Iodine-126	53	0.01 (.00037)
Iodine-128	53	1000 (37)
Iodine-129	53	
Iodine-130	53	0.001 (.000037)
Iodine-131		1 (.037)
Iodine-132	53	0.01 (.00037)
Inding 122m	53	10 (.37)
Iodine-132m	53	10 (.37)
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Iodine-133	53	0.1 (.0037)
Iodine-134	53	100 (3.7)
Iodine-135	53	10 (.37)
Iridium-182	77	1000 (37)
Iridium-184	77	100 (3.7)
Iridium-185	77	100 (3.7)
Iridium-186	77	10 (.37)
Iridium-187	77	100 (3.7)
Iridium-188	77	10 (.37)
Iridium-189	77	100 (3.7)
Iridium-190	77	10 (.37)
Iridium-190	 77	1000 (37)
Iridium-192	77	10 (.37)
Iridium-192m	77	100 (3.7)
Iridium-194	77	100 (3.7)
Iridium-194	77	10 (.37)
Iridium-195	77	1000 (37)
	77	100 (3.7)
Iridium-195m	26	100 (3.7)
Iron-52	26	100 (3.7)
Iron-55	26	10 (3.7)
Iron-59	26	0.1 (.0037)
Iron-60	36	10 (.37)
Krypton-74	36	10 (.37)
Krypton-76	36	10 (.37)
Krypton-77	36	100 (3.7)
Krypton-79	36	100 (3.7)
Krypton-81	36	1000 (37)
Krypton-83m	36	1000 (37)
Krypton-85	36	1000 (37)
Krypton-85m	36	10 (3.7)
Krypton-87	36	10 (.37)
Krypton-88Lanthanum-131	57	1000 (37)
Lanthanum-132	57	100 (3.7)
Lanthanum-135	57	1000 (37)
Lanthanum-137	57	10 (.37)
Lanthanum-138	57	1 (.037)
Lanthanum-140	57	10 (.37)
Lanthanum-141	57	1000 (37)
Lanthanum-142	57	100 (3.7)
Lanthanum-143	57	1000 (37)
Lead-195m	82	1000 (37)
Lead-198	82	100 (3.7)
Lead-199	82	100 (3.7)
Lead-200	82	100 (3.7)
Lead-201	82	100 (3.7)
Lead-201	82	1 (.037)
Lead-202	82	10 (.37)
Lead-203	82	100 (3.7)
Lead-205	82	100 (3.7)
Lead-209	82	1000 (37)
Lead-210	82	0.01 (.00037)
Lead-211	82	100 (3.7)
Lead-212	82	10 (.37)
Lead-214	82	100 (3.7)
Lutetium-169	71	10 (.37)
Lutetium-170	71	10 (.37)
Lutetium-171	71	10 (.37)
Lutetium-172	71	10 (.37)

Lutetium-173	71	100 (3.7)
Lutetium-174	71	10 (.37)
Lutetium-174m	71	10 (.37)
Lutetium-176	71	1 (.037)
Lutetium-176m	71	
Lutetium-177		1000 (37)
Lutetium-177m	71	100 (3.7)
Lutetium-178	71	10 (.37)
Lutotium 170	71	1000 (37)
Lutetium-178m	71	1000 (37)
Lutetium-179	71	1000 (37)
Magnesium-28	12	10 (.37)
Manganese-51	25	1000 (37)
Manganese-52	25	10 (.37)
Månganese-52m	. 25	1000 (37)
Manganese-53	25	1000 (37)
Manganese-54	25	10 (.37)
Manganese-56	25	100 (3.7)
Mendelevium-257	101	, ,
Mendelevium-258		100 (3.7)
Mercury-193	101	1 (.037)
Mercury 102-	80	100 (3.7)
Mercury-193m	80	10 (.37)
Mercury-194	80	0.1 (.0037)
Mercury-195	80	100 (3.7)
Mercury-195m	80	100 (3.7)
Mercury-197	80	1000 (37)
Mercury-197m	80	1000 (37)
Mercury-199m	80	1000 (37)
Mercury-203	80	10 (.37)
Molybdenum-101	42	1000 (37)
Molybdenum-90	42	100 (3.7)
Molybdenum-93	42	100 (3.7)
Molybdenum-93m	42	10 (.37)
Molybdenum-99	42	100 (3.7)
Neodymium-136	60	
Neodymium-138	60	1000 (37)
Neodymium-139	60	1000 (37)
Neodymium-139m		1000 (37)
Needymium 141	60	100 (3.7)
Neodymium-141	60	1000 (37)
Neodymium-147	60	10 (.37)
Neodymium-149	60	100 (3.7)
Neodymium-151	60	1000 (37)
Neptunium-232	93	1000 (37)
Neptunium-233	93	1000 (37)
Neptunium-234	93	10 (.37)
Neptunium-235	93	1000 (37)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (.0037)
Neptunium-236 (22.5 hr)	93	100 (3.7)
Neptunium-237	93	0.01 (.00037)
Neptunium-238	93	10 (.37)
Neptunium-239	93	100 (3.7)
Neptunium-240	93	
Nickel-56	28	100 (3.7)
Nickel-57	28	10 (.37)
Nickel-59		10 (.37)
Nickel-63	28	100 (3.7)
Nickel-65	28	100 (3.7)
Nickel 66	28	100 (3.7)
Nickel-66	28	10 (.37)
Niobium-88	41	100 (3.7)
Niobium-89 (122 min)	41	100 (3.7)
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		100 (0.7)
Niobium-89 (66 min)	41	100 (3.7)
Niobium-90	41	10 (.37)
Niobium-93m	41	100 (3.7)
Niobium-94	41	10 (.37)
Niobium-95	41	10 (.37)
Niobium-95m	41	100 (3.7)
Niobium-96	41	10 (.37)
Niobium-97	41	100 (3.7)
Niobium-98	41	1000 (37)
Osmium-180	76	1000 (37)
Osmium-181	76	100 (3.7)
Osmium-182	76	100 (3.7)
Osmium-185	76	10 (.37)
Osmium-189m	76	1000 (37)
Osmium-191	76	100 (3.7)
Osmium-191m	76	1000 (37)
Osmium-193	76	100 (3.7)
Osmium-194	76	1 (.037)
Palladium-100	46	100 (3.7)
Palladium-101	46	100 (3.7)
Palladium-103	46	100 (3.7)
Palladium-107	46	100 (3.7)
Palladium-109	46	1000 (37)
Phosphorus-32	15	0.1 (.0037)
Phosphorus-33	15	1 (.037)
Platinum-186	78	100 (3.7)
Platinum-188	78	100 (3.7)
Platinum-189	78	100 (3.7)
Platinum-191	78	100 (3.7)
Platinum-193	78	1000 (37)
Platinum-193m	78	100 (3.7)
Platinum-195m	78	100 (3.7)
Platinum-197	78	1000 (37)
Platinum-197m	78	1000 (37)
Platinum-199	78	1000 (37)
Platinum-200	78	100 (3.7)
Plutonium-234	94	1000 (37)
Plutonium-235	94	1000 (37)
Plutonium-236	94	0.1 (.0037)
Plutonium-237	94	1000 (37)
Plutonium-238	94	0.01 (.00037)
Plutonium-239	94	0.01 (.00037)
Plutonium-240	94	0.01 (.00037)
Plutonium-241	94	1 (.037)
Plutonium-242	94	0.01 (.00037)
Plutonium-243	94	1000 (37)
Plutonium-244	94	0.01 (.00037)
Plutonium-245	94	100 (3.7)
Polonium-203	84	100 (3.7)
Polonium-205	84	100 (3.7)
Polonium-207	84	10 (.37)
Polonium-207	84	0.01 (.00037)
Potassium-40	19	1 (.037)
Potassium-42	19	100 (3.7)
Potassium-43	19	10 (.37)
Potassium-44	19	100 (3.7)
Potassium-45	19	1000 (37)
Praseodymium-136	59	1000 (37)
Praseodymium-137		1000 (37)
		` '

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Praseodymium-138m	. 59	100 (3.7)
Praseodymium-139	. 59	1000 (3.7)
-142	59	100 (3.7)
Praseodymium-142m	59	100 (3.7)
Praseodymium-143	. 59	, ,
Praseodymium-144	. 59 59	10 (.37)
Praseodymium-145		1000 (37)
	59	1000 (37)
Promothium 141	59	1000 (37)
Promethium-141	61	1000 (37)
Promethium-143	61	100 (3.7)
Promethium-144	61	10 (.37)
Promethium-145	61	100 (3.7)
Promethium-146	61	10 (.37)
Promethium-147	61	10 (.37)
Promethium-148	61	10 (.37)
Promethium-148m	61	10 (.37)
Promethium-149	61	100 (3.7)
Promethium-150	61	100 (3.7)
Promethium-151	61	100 (3.7)
Protactinium-227	91	100 (3.7)
Protactinium-228	91	
Protactinium-230	91	10 (.37)
Protactinium-231		10 (.37)
	91	0.01 (.00037)
Protactinium-232	91	10 (.37)
Protactinium-233	91	100 (3.7)
Protactinium-234	91	10 (.37)
RADIONUCLIDES \$ <dagger></dagger>	••••••	1 (.037)
Radium-223	88	1 (.037)
Radium-224	88	10 (.37)
Radium-225	-88	1 (.037)
Radium-226 **	88	0.1 (.0037)
Radium-227	88	1000 (37)
Radium-228	88	0.1 (.0037)
Radon-220	86	0.1 (.0037)
Radon-222	86	0.1 (.0037)
Rhenium-177	75	1000 (37)
Rhenium-178	75 75	1000 (37)
Rhenium-181	75 75	
Rhenium-182 (12.7 hr)		100 (3.7)
	75 75	10 (.37)
Rhenium-182 (64.0 hr)	75	10 (.37)
Rhenium-184	75	10 (.37)
Rhenium-184m	75	10 (.37)
Rhenium-186	75	100 (3.7)
Rhenium-186m	75 .	10 (.37)
Rhenium-187	75	1000 (37)
Rhenium-188	75	1000 (37)
Rhenium-188m	75	1000 (37)
Rhenium-189	75	1000 (37)
Rhodium-100	45	10 (.37)
Rhodium-101	45	10 (.37)
Rhodium-101m	45	100 (3.7)
Rhodium-102	45	10 (.37)
Rhodium-102m	45	10 (.37)
Rhodium-103m	45	
Rhodium-105	45	1000 (37)
Rhodium-106m		100 (3.7)
Rhodium-107	45 45	10 (.37)
	45	1000 (37)
Rhodium-99	45	10 (.37)
Rhodium-99m	45	100 (3.7)
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Washington University School of Medicine

Contingency Plan: In the event of a hazardous chemical or biological release

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Rubidium-79	37	1000 (37)
Rubidium-81	37	100 (3.7)
Rubidium-81m	37	1000 (37)
Rubidium-82m	37	10 (.37)
Rubidium-83	37	10 (.37)
Rubidium-84	37	10 (.37)
Rubidium-86	37	10 (.37)
Rubidium-87	37	10 (.37)
Rubidium-88	37	1000 (37)
Rubidium-89	37	1000 (37)
Ruthenium-103	44	10 (.37)
Ruthenium-105	44	100 (3.7)
Ruthenium-106	44	1 (.037)
Ruthenium-94	44	1000 (37)
Ruthenium-97	44	100 (3.7)
Samarium-141	62	1000 (37)
Samarium-141m	62	1000 (37)
Samarium-142	62	1000 (37)
Samarium-145	62	100 (3.7)
Samarium-146	62	0.01 (.00037)
Samarium-147	62	0.01 (.00037)
Samarium-151	62	10 (.37)
Samarium-153	62	100 (3.7)
Samarium-155	62	1000 (37)
Samarium-156	62	100 (3.7)
Scandium-43	21	1000 (37)
Scandium-44	21	100 (3.7)
Scandium-44m	21	10 (.37)
Scandium-46	21	10 (.37)
Scandium-47	21	100 (3.7)
Scandium-48	21	10 (.37)
Scandium-49	21	1000 (37)
Selenium-70	34	1000 (37)
Selenium-73	34	10 (.37)
Selenium-73m	34	100 (3.7)
Selenium-75	34	10 (.37)
Selenium-79	34	10 (.37)
Selenium-81	34	1000 (37)
Selenium-81m	34	1000 (37)
Selenium-83	34	1000 (37)
Silicon-31	14	1000 (37)
Silicon-32	14	1 (.037)
Silver-102	47	100 (3.7)
Silver-102	47	1000 (37)
Silver-104	47	1000 (37)
Silver-104m	47	1000 (37)
Silver-105	47	10 (.37)
Silver-106	47	1000 (37)
Silver-106	47	10 (.37)
	47	10 (.37)
Silver-108m	47	10 (.37)
Silver-111	47	10 (.37)
Silver-112	47	100 (3.7)
Silver-115	47	1000 (37) ·
0.11. 00	11	10 (.37)
Sodium-24	11	10 (.37)
Strontium-80	38	100 (3.7)
Strontium-81	38	1000 (37)
Strontium-83	38	100 (3.7)
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Strontium-85	38	10 (.37)
Strontium-85m	38	1000 (37)
Strontium-87m	38	100 (3.7)
Strontium-89	38	10 (.37)
Strontium-90	38	0.1 (.0037)
Strontium-91	38	10 (.37)
Strontium-92	38	100 (3.7)
Sulfur-35	16	1 (.037)
Tantalum-172	73	100 (3.7)
Tantalum-173	73	100 (3.7)
Tantalum-174	73	100 (3.7)
Tantalum-175	73	100 (3.7)
Tantalum-176	73	100 (3.7)
Tantalum-177	73	10(.37)
Tantalum-178	73	1000 (37)
Tantalum-179	73	1000 (37)
Tantalum-180	73	
Tantalum-180m	73	100 (3.7)
Tantalum-182	73 73	1000 (37)
Tantalum-182m	73	10 (.37)
Tantalum-183	73 73	1000 (37)
Tantalum-184		100 (3.7)
Tantalum-185	73 72	10 (.37)
Tantalum-186	73	1000 (37)
Technetium-101	73	1000 (37)
Technetium-104	43	1000 (37)
Technetium-93	43	1000 (37)
Technetium-93m	43	100 (3.7)
Technetium-94	43	1000 (37)
Technetium-94m	43.	10 (.37)
Technetium-96	43	100 (3.7)
Technetium-96m	43	10 (.37)
Technetium-97	43	1000 (37)
Technetium-97m	43	100 (3.7)
Tachnetium 00	43	100 (3.7)
Technetium-98 Technetium-99	43	10 (.37)
Tachmatium 00	43	10 (.37)
Technetium-99m	43	100 (3.7)
Tellurium-116 Tellurium-121	52	1000 (37)
Tellurium 121	52	10 (.37)
Tellurium-121m	52	10 (.37)
Tellurium-123 m	52	10 (.37)
Tellurium-125m	52	10 (.37)
Tellurium-127	52	10 (.37)
Tollusium 127	52	1000 (37)
Tellurium-127m	52	10 (.37)
Tellurium-129	52	1000 (37)
Tellurium-129m	52	10 (.37)
Tellurium-131	52	1000 (37)
Tellurium-131m	52	10 (.37)
Tellurium-132	52	10 (.37)
Tellurium-133	52	1000 (37)
Tellurium-133m	52	1000 (37)
Tellurium-134	52	1000 (37)
Terbium-147	65	100 (3.7)
Terbium-149	65	100 (3.7)
Terbium-150	65	100 (3.7)
Terbium-151	65	10 (.37)
Terbium-153	65	100 (3.7)
Terbium-154	65	10 (.37)
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Contingency Plan: In the event of a hazardous chemical or biological release

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Terbium-155	65	100 (3.7)
Terbium-156	65	10 (.37)
Terbium-156m (24.4 hr)	65	1000 (37)
Terbium-156m (5.0 hr)	65	1000 (37)
Terbium-157	65	100 (3.7)
Terbium-158	65	10 (.37)
Terbium-160	65	10 (.37)
Terbium-161	65	100 (3.7)
Thallium-194	81	1000 (37)
Thallium-194m	81	100 (3.7)
Thallium-195	81	100 (3.7)
Thallium-197	81	100 (3.7)
Thallium-198	81	10 (.37)
Thallium-198m	81	100 (3.7)
Thallium-199	81	100 (3.7)
Thallium-200	81	10 (.37)
Thallium-200	81	1000 (37)
Thallium-202	81	10 (.37)
Thallium-204	81	10 (.37)
Thorium (Irradiated)	90	***
Thorium (Natural)	90	**
Thorium-226	90	100 (3.7)
Thorium-227	90	1 (.037)
Thorium-227	90	0.01 (.00037)
Thorium-229	90	0.001 (.000037)
Thorium-229	90	0.01 (.00037)
Thorium-230	90	100 (3.7)
Thorium-231	90	0.001 (.000037)
Thorium-232 ** Thorium-234	90	100 (3.7)
	69	1000 (37)
Thulium-162	69	10 (.37)
Thulium-166	69	100 (3.7)
Thulium-167	69	10 (.37)
Thulium-170	69	100 (3.7)
Thulium-171	69	100 (3.7)
Thulium-172	69	100 (3.7)
Thulium-173	69	100 (3.7)
Thulium-175	50	100 (3.7)
Tin-110	50 50	100 (3.7)
Tin-111		1000 (37)
Tin-113	50	100 (3.7)
Tin-117m	50 50	10 (3.7)
Tin-119m	50	1000 (37)
Tin-121		10 (.37)
Tin-121m	50	10 (.37)
Tin-123	50 50	1000 (37)
Tin-123m	50	10 (.37)
Tin-125	50	1 (.037)
Tin-126	50 50	100 (3.7)
Tin-127		100 (3.7)
Tin-128	50	, -
Titanium-44	22	1 (.037) 1000 (37)
Titanium-45Tungsten-176	22	1000 (37)
Tungsten-176	74	
Tungsten-177	74	100 (3.7)
Tungsten-178 Tungsten-179	74	100 (3.7)
Tungsten-179	74 74	1000 (37)
Tungsten-181	74 74	100 (3.7)
Tungsten-185	74 74	10 (.37)
Tungsten-187	74	100 (3.7)

Tungsten-188	74	10 (.37)
Uranium (Depleted)	. 92	***
Uranium (Irradiated)	92	***
Uranium (Natural)	92	**
Uranium Enriched 20% or greate	er . 92	*** •
Uranium Enriched less than 20%	5. 92	***
Uranium-230	92	1 (.037)
Uranium-231	92	1000 (37)
Uranium-232	92	0.01 (.00037)
Uranium-233	92	0.1 (.0037)
Uranium-234 **	92	0.1 (.0037)
Uranium-235 **	92	0.1 (.0037)
Uranium-236	92	0.1 (.0037)
Uranium-237	92	100 (3.7)
Uranium-238 **	92	
Uranium-239	92	0.1 (.0037)
Uranium-240	92	1000 (37)
Vanadium-47	23	1000 (37)
Vanadium-48	23	1000 (37)
Vanadium-49	23	10 (.37)
Xenon-120	23 54	1000 (37)
Xenon-121	54 54	100 (3.7)
Xenon-122	54 54	10 (.37)
Xenon-123		100 (3.7)
Xenon-125	54	10 (.37)
Xenon-127	54	100 (3.7)
Xenon-129m	54	100 (3.7)
Xenon-131m	54	1000 (37)
Xenon-133	54	1000 (37)
Xenon-133m	54	1000 (37)
Xenon-135	54	1000 (37)
Xenon-135m	54 54	100 (3.7)
Xenon-138	54 54	10 (.37)
Ytterbium-162	70	10 (.37)
Ytterbium-166	70	1000 (37) 10 (.37)
Ytterbium-167	70	
Ytterbium-169	70	1000 (37) 10 (.37)
Ytterbium-175	70	100 (3.7)
Ytterbium-177	70	1000 (3.7)
Ytterbium-178	70	1000 (37)
Yttrium-86	39	10 (.37)
Yttrium-86m	39	1000 (37)
Yttrium-87	39	10 (.37)
Yttrium-88	39	10 (.37)
Yttrium-90	39	10 (.37)
Yttrium-90m	39	100 (3.7)
Yttrium-91	39	10 (.37)
Yttrium-91m	39	1000 (37)
Yttrium-92	39	100 (3.7)
Yttrium-93	39	100 (3.7)
Yttrium-94	39	1000 (37)
Yttrium-95	39	1000 (37)
Zinc-62	30	100 (3.7)
Zinc-63	30	1000 (37)
Zinc-65	30	10 (.37)
Zinc-69	30	1000 (37)
Zinc-69m	30	100 (3.7)
Zinc-71m Zinc-72	30	100 (3.7)
ZIIIC-/2	30	100 (3.7)

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Zirconium-86	40	100 (3.7)
Zirconium-88	40	10 (.37)
Zirconium-89	40	100 (3.7)
Zirconium-93	40	1 (.037)
Zirconium-95	40	10 (.37)
Zirconium-97	40	10 (.37)
ZiiComum-9/		, ,

The RQs for all radionuclides apply to chemical compounds containing the radionuclides and elemental forms regardless of the diameter of pieces of solid material.

The RQ of one curie applies to all radionuclides not otherwise listed. Whenever the RQs in TABLE 1--HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES and this table conflict, the lowest RQ shall apply. For example, uranyl acetate and uranyl nitrate have RQs shown in TABLE 1 of 100 pounds, equivalent to about one-tenth the RQ level for uranium- 238 in this table.

- ** The method to determine the RQs for mixtures or solutions of radionuclides can be found in paragraph 7 of the note preceding TABLE 1 of this appendix. RQs for the following four common radionuclide mixtures are provided: radium-226 in secular equilibrium with its daughters (0.053 curie); natural uranium (0.1 curie); natural uranium in secular equilibrium with its daughters (0.052 curie); and natural thorium in secular equilibrium with its daughters (0.011 curie).
- *** Indicates that the name was added by RSPA because it appears in the list of radionuclides in 49 CFR 173.435. The reportable quantity (RQ), if not specifically listed elsewhere in this appendix, shall be determined in accordance with the procedures in paragraph 7 of this appendix.

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Attachment I

Washington University Medical Center Map

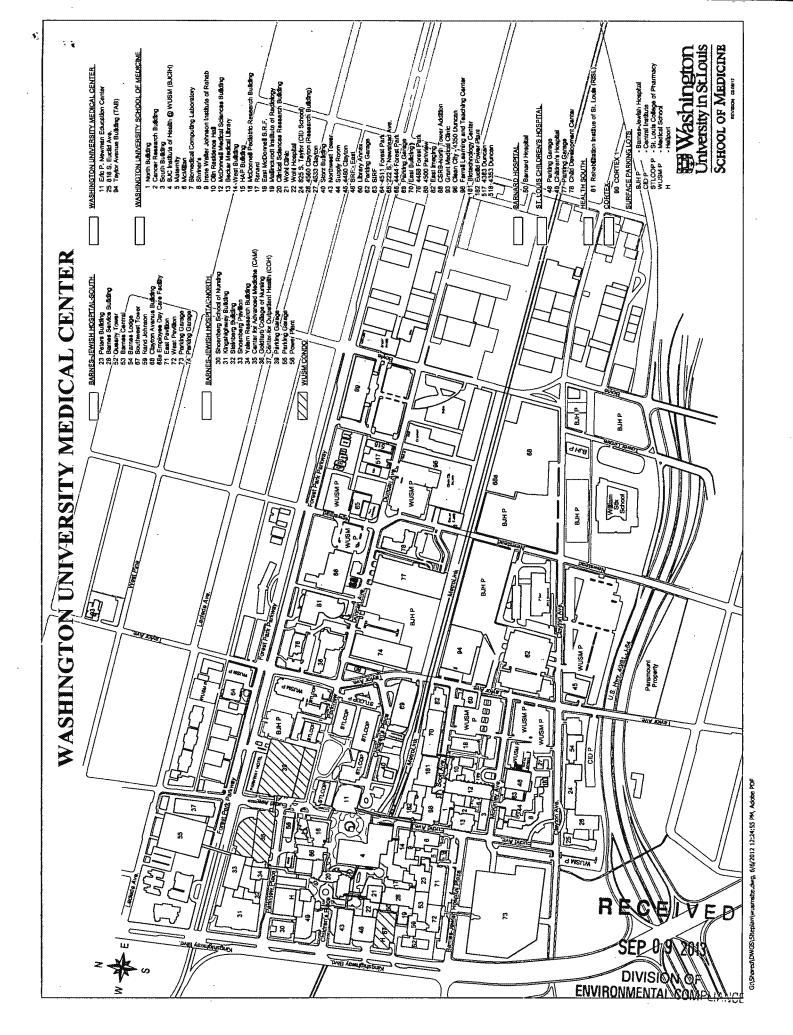
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Washington University School of Medicine Contingency Plan: In the event of a hazardous chemical or biological release



From:

Scott Rehmer

Sent:

Tuesday, August 27, 2013 11:18 AM

To:

'Isringhausen, Mary'

Subject:

RE: Dioxin testing at -- WASHINGTON UNIVERSITY MEDICAL SCHOOL [1024353000]

Hi Livi,

Thanks for your letter regarding the testing of 2,3,7,8-tetrachlorodibenzo-p-dioxin. Due to the extremely small quantity of this priority pollutant, and due to the handling and disposal, MSD grants exemption from the testing of this chemical; consequently, we will update our data base to consider dioxin as "suspected absent" from your facility. Please have your records reflect the same.

Your facility must inform MSD if there are any planned changes to the volume of dioxin, or any other priority pollutant. There are a number of factors which can affect the compliance of the facility effluent with federal standards and MSD Ordinance 12559 standards, and it is the user who has the responsibility to maintain the facility in compliance with those limits. This letter is not intended to allow discharge of any material that would cause a violation of federal standards or the ordinance.

Thank you for your assistance in helping us comply with state and federal regulations.

Scott M. Rehmer

Assistant Engineer
Environmental Compliance
Department of Engineering
Metropolitan St. Louis Sewer District
10 East Grand Avenue
St. Louis, MO 63147

Phone: 314.436.8756 Fax: 314.436.8753

Customer Service: 314,768,6260

From: Isringhausen, Mary [mailto:isringhausenm@wusm.wustl.edu]

Sent: Tuesday, August 27, 2013 8:55 AM

To: Scott Rehmer **Subject:** Dioxin

Please see attached request. Hard copy in mail. Thanks.

Livi Isringhausen
Environmental Compliance Manager
Washington University School of Medicine
office 314-362-6735
cell 314-713-3901
fax 314-362-1095
http://ehs.wustl.edu/



Washington University in St.Louis Environmental Health & Safety

Washington University Medical School [1024-3530-00]

August 26, 2013

Metropolitan Sewer District
Division of Environmental Compliance
10 East Grand Ave
St. Louis, MO 63147-2913

Re Exemption for the annual requirement to test for 2,3,7,8-tetrachlorodibenzo-p-dioxin

Dear Mr. Rehmer,

This letter serves as an official request for an exemption to the requirement of providing sampling and analytical analysis for 2,3,7,8-tetrachlorodibenzo-p-dioxin once per year.

Washington University School of Medicine (WUSM) is currently required to perform this analytical analysis, as we have a minute quantity of dioxin standard used for research, as reported on the MSD Industrial User Questionnaire. This request is being made due to the minute amounts WUSM possesses, the limited number of laboratories in the U.S. that are able to provide this analysis and the considerable cost associated.

| Dug | Phone all, 8/27/13, SR

WUSM's chemical inventory system shows one (1) ampule of 10 yiug 2,3,7,8-tetrachlorodibenzo-p-dioxin solution analytical standard in one (1) milliliter of toluene. The standard is used approximately one time per month for a research experiment. The laboratory, located in BJCIH room 8103, stores the ampoule in a chemical storage freezer and WUSM Environmental Health and Safety policy and checklist prohibit drain disposal of Hazardous Waste or Unwanted Materials.

Please feel free to contact me at (314)362-6735 if you have any questions are concerns.

Livi Isringhausen

Environmental Compliance Manager

Scott Rehmer

From:

Scott Rehmer

Sent:

Tuesday, August 20, 2013 9:32 AM

To:

'Isringhausen, Mary'

Subject:

RE: self monitoring report Q3-2013

Livi,

I spoke with Doug, my boss.

He says that there are only two options:

- 1. Sample all pollutants that are KP or SP; or
- 2. Confirm that those additional 14 listed below are either Known Absent (KA) or Suspected Absent (SA).

Failure to sample all pollutants present on site at least once per year is a violation and may place your facility in Significant Noncompliance (SNC).

Thank you for helping us to comply with state and federal regulations, and I apologize for the delayed response.

Scott M. Rehmer

Assistant Engineer

Environmental Compliance

Department of Engineering

Metropolitan St. Louis Sewer District

10 East Grand Avenue

St. Louis, MO 63147

Phone: 314.436.8756

Fax: 314.436.8753

Customer Service: 314.768.6260

From: Scott Rehmer

Sent: Tuesday, August 20, 2013 7:05 AM

To: 'Isringhausen, Mary'

Subject: RE: self monitoring report for Q3-2013

Hi Livi.

Thanks for the additional lab data sheet; this looks complete to me for the phenols.

Going forward, I have compared the KP/SP (known or suspected present) of priority pollutants between the ones reported this quarter versus the latest questionnaire (IUQ) received July 13, 2012.

The following were marked KP/SP on the IUQ, but were not reported for this quarter:

Aldrin, Bromoform, Chlordane, Dieldrin, Diethyl Phthalate, Gamma-BHC, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Hexachloroethane, Isophorone, Phenanthrene, Pyrene, 2378-Tetrachlorodibenzo-pdioxin.

Please compare this list to yours, and forward to your testing lab, for future testing and reporting. I will double check with Doug to see if all of these are necessary.

Thank you,

SR

From: Isringhausen, Mary [mailto:isringhausenm@wusm.wustl.edu]

Sent: Monday, August 19, 2013 1:46 PM

To: Scott Rehmer

Subject: FW: St. Louis Testing

Do you need me to do anything else??

Livi Isringhausen

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

Company Name:

Washington University School of Medicine

Permit No:

51122162-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2012

(Jan-Mar)

(Apr-June) √ (July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number			001	ľ	003		005	
Dates on Which Samples Were Collected			7/25/2013 7/25/2013	G: C:	7/25/2013 7/25/2013	G: C:	7/25/2013 7/25/2013	
imes at Which Samples Were Collected		G:	3:15 p.m.	G:	3:25 p.m.	G:	3:00 p.m.	
The section of the se	————	C:	8:55em - 3:15 pm	C: -		IC:	8:50 am - 3:00 pm	
DADAMETED	LINATT		-		(G,C,M, or E)			Linite
PARAMETER Flow	LIMIT	E	(E E	M≃measured flo	W, E=	· · · · · · · · · · · · · · · · · · ·	Units
Biological Oxygen Demand (C)	****	C	28,250 52	c	55,500 37	C	450,000 55	Gal/Day
Chemical Oxygen Demand (C)	****	c	112	c	127	c	157	mg/L
Total Suspended Solids (C)	****	c	46	c	22	c	70	mg/L mg/L
pH (Std. pH Units) (G)	5.5 - 11.5	G	8.23	G	9.47	G	9.08	pH
Femperature, °C (G)	60	G	30.9	G	31.5	G	30.1	Celcius
Oil & Grease (G)	200	G	ND	G	ND ND	G	ND	
	0.4	G	0.045	c	ND ND	c	ND	mg/L
Total Cyanide (G)	-	. C		c	 	c	 	mg/L
Cadmium (C)	5	C	ND .	C	ND ND	c	ND ND	mg/L
Chromium (C)	}	 	ND 0.03		- ND		ND	mg/L
Copper (C)	2.7	G	0.02	G G	0.01	G	0.03	mg/L
Lead (C)	0.4	-	ND ND		ND	G	ND ND	mg/L
Nickel (C)	2.3	G	ND	G	ND	G	ND ND	mg/L
Selenium (C)	0.2	c	ND ND	c	ND 0.03	C	ND ND	mg/L
Silver (C)	0.5			+	0.03			mg/L
Thallium (C)	.}	C	ND	L _C	ND 0.04	C	ND 0.00	mg/L
Cinc (C)	3	C	0.05	C	0.04	C	0.08	mg/L
Mercury (C)	0.01	C	ND	C	0.005	C	ND	mg/L
		<u></u>	001 7/26/2011	ļ.,	003 7/26/2011	<u></u>	005 7/26/2011	
		G: G:	10:12 AM	G:	10:22 AM	G: G:	10:00 AM	
,1,1,-Trichloroethane	5.884	G	NÓ	G	ND	G	ND	mg/L
,1,2,2-Tetrachloroethane	5.844	G	ND	G	ND	G	ND	mg/L
,1,2- Trichloroethane	5.844	G	ND	G	ND	G	ND	mg/L
,1-Dichloroethane	5.844	G	ND	G	ND	G	ND	mg/L
,1-Dichloroethene	5.844	G	ND	G	ND	G	ND	mg/L
,2,4-Trichlorobenzene	5.844	G	ND	G	ND	G	ND	mg/L
,2- Dichlorobenzene	5.844	G	ND .	G	ND	G	ND	mg/L
,2-Dichloroethane	5.844	G	ND	G	ND	G	ND	mg/L
,2- Dichloropropane	5.844	G	ND	G	ND	G	ND	mg/L
,3- Dichlorobenzene	5.844	G	ND	G	ND	G	ND	mg/L
,4- Dichlorobenzene	5.844	G	ND	G	ND	G	ND	mg/L
-Chloroethyl vinyl ether	5.844	G	ND	G	ND	G	ND	mg/L
crolein	5.844	G	ND	G	ND	G	ND	mg/L
Acrylonitrile	5.844	G	ND	G	ND	G	ND	mg/L
lenzene	5.844	G	ND	G	ND	G	ND	mg/L
fromodichloromethane	5.844	G	ND	G	ND	G	ND	mg/L
romomethane	5.844	G	ND	G	ND	G	ND	mg/L
Carbon tetrachloride	5.844	G	ND	G	ND	G	ND	mg/L
hlorobenzene	5.844	G	ND	G	ND	G	ND	mg/L
Chloroethane	5.844	G	ND	G	ND .	G	ND	mg/L
Chloroform	5.844	G	0.0031	G	0.031	G	0.015	mg/L
Chloromethane	5.844	G	. ND	G	ND	G	ND	mg/L
is-1,3 – Dichloropropene	5.844	G	ND	G	ND	G	ND	mg/L
Dibromochloromethane	5.844	G	ND	G	ND	G	ND	mg/L

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Ethylbenzene Methylene chloride Naphthalene Nitrobenzene Tetrachloroethene Toluene trans-1,2-Dichloroethene trans-1,3-Dichloropropene Trichloroethene 2,4,6-Trichlorophenol 2,4,Dichlorophenol 2,4-Dimethylphenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Chlorophenol 2-Nitrophenol 3,3-Dichlorobenzidine 4-Chloro-3-methylphenol 4-Nitrophenol Acenaphthene Acenaphthylene Anthracene Azobenzene Benzidine Benzo(a)pyrene Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-chloroisopropyl)ether N-Nitrosodimethylamine Phenol

		i					
5.844	G	ND	G	0.0041	0	0.0032	mg/L
5.844	G	[†] ND [↓]	G	ND .	G.	0.0077	mg/L
5.844	G	·ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ПИ	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G.	ND	mg/L
5.844	G	ND	·G	ND	G	ND	mg/L
5.844	G	; ND	G	ND	G	ND	mg/L
5.844	G	ND.	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G.	ND	mg/L
5.844	G	ND	G	ND -	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G.	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	NĎ	G.	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
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5.844	G	ND	G	ND.	G.	-ND	mg/L
5.844	G	ND	G	ND	G.	ND	mg/L
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5.844	G	ND	Ġ	ND	G	ND	mg/L
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MSD 044403

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

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PART I:

IDENTIFYING INFORMATION

AUG 0 6 2013

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

DIVISION OF

Premise Address: 1

ENVIRONMENTAL COMPLIANCE

Monitoring Period:

660 South Euclid Ave., St. Louis, MO, 63110 2008

(Apr-June)

Samples Collected By:

(Jan-Mar)

(July-Sept)

(Oct-Dec)

St. Louis Testing Laboratories

* flows provided per pc w/ L. IsringhauxN ON 8/16.

Analysis Performed By:

2-Chloroethyl vinyl ether

Acrolein

Benzene

Acrylonitrile

St. Louis Testing Laboratories

5.844

5.844

5.844

5.844

G

G

G

G

ND

ND

ND

ND

G

G

G

G

ANALYTICAL RESULTS OF SELF MONITORING PART II:

MSD Sample Point Reference Number 006 007 008* 009 7/25/2013 7/25/2013 7/25/2013 7/25/2013 Dates on Which Samples Were Collected 7/25/2013 7/25/2013 4:00 PM 3:40 PM 3:50 PM 3:05 AM Times at Which Samples Were Collected 9:30 AM-3:40PM 8:45 AM - 4:00 PM 8:50 AM-3:05PM 9:20 AM-3:50PM Record Sample Types (G,C;M, or E) And Results Below Units **PARAMETER** G=grab, C-composite, M=measured flow, E=estimated flow 24,000 8,900 142K 142K Gal/Day Flow LIMIT Ε Ε Ε F Biological Oxygen Demand (C) С С C 102 С 73 73 177 mg/L **** С С С С Chemical Oxygen Demand (C) 235 235 272 340 mg/L *** Total Suspended Solids (C) C 49 С 49 С 181 C 43 mg/L pH (Std. pH Units) (G) 5.5 - 11.5 G 8.27 G 8.27 G 8.28 G 8.22 рΗ 60 G G G G Temperature, °C (G) 31.4 31.4 30.4 29.2 mg/L G Oil & Grease (G) 200 G ND G ND G 5 8 Celcius Total Cyanide (G) С 0.034 С 0.034 С 0.01 С ND 0.4 mg/L С С С С ND Cadmium (C) 0.7 ND ND ND mg/L Chromium (C) 5 С ND C ND C ND С ND mg/L Copper (C) G 0.02 G 0.02 G 0.03 G 0.03 2.7 mg/L Lead (C) 0.4 G G 0.01 G ND G ND 0.01 mg/L Nickel (C) G ND G ND G ND G ND 2.3 mg/L Selenium (C) С ND С ND С ND C ND 0.2 mg/L С С С С 0.5 ND ND 0.02 0.08 Silver (C) mg/L Thallium (C) *** С ND С ND С ND C ND mg/L Zinc (C) 3 С 0.05 С 0.07 С 0.08 С 0.06 mg/L ND С 0.01 C ND С ND C ND mg/L Mercury (C) 009 006 007 800 7/26/2011 8:41 AM 8:08 AM 8:25 AM 8:21 AM 5.884 G G G G 1,1,1,-Trichloroethane ND ND ND ND mg/L G G G G 1,1,2,2-Tetrachloroethane 5.844 ND ND ND ND mg/L G 1.1.2- Trichloroethane 5.844 G ND G ND ND G ND mg/L G ND G ND ND G ND 1.1-Dichloroethane 5.844 G mg/L 1,1-Dichloroethene 5.844 G ND G ND G ND G ND mg/L 1.2.4-Trichlorobenzene 5.844 G ND G ND G ND G ND mg/L G G ND G ND G ND ND 1,2- Dichlorobenzene 5.844 mg/L G G ND G G ND 1,2-Dichloroethane 5.844 ND ND mg/L G ND G ND G ND G ND 1,2- Dichloropropane. 5.844 mg/L ND G ND ND 1,3- Dichlorobenzene 5.844 G ND G G mg/L G G G ND 5.844 G ND ND ND mg/L 1.4- Dichlorobenzene

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mg/L

Bromodichloromethane
Bromomethane
Carbon tetrachloride
Chlorobenzene
Chloroethane∃ O ∃ Fl
Chloroform
Chloromethane cis-1,3 – Dichloropropene
Dibromochloromethane
ENVIRONMENTA PRESENCE
Methylene chloride
Naphthalene
Nitrobenzene
Tetrachloroethene
Toluene
trans-1,2-Dichloroethene
trans-1,3-Dichloropropene
Trichloroethene ·
2,4,6-Trichlorophenol
2,4,Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chlorophenol
2-Nitrophenol
3,3-Dichlorobenzidine
4-Chloro-3-methylphenol
4-Nitrophenol
Acenaphthene
Acenaphthylene
Anthracene
Azobenzene
Benzidine
Benzo(a)pyrene
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether

N-Nitrosodimethylamine

Phenol

5.844	Ġ	0.0012	G	ND	G	ND	G	ND		mg/L
5.844	Ġ	ND	G	ND.	G	ND	G	ND		mg/L
5.844	Ġ	ND	G	ND	G	D	G	ND		mg/L
5.844	Ġ	ND	G	ND	G	ND	G	ND		mg/L
5.844	G	. ND	G	ND	G	ND	G	ND		mg/L
5.844	Ġ	0.0041	G	,0.16	G	0.0012	G	. ND		mg/L
5.844	Ğ	ND	G	ND	G	ND	G	ND		mg/L
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5.844	G	ND	G	ND	G	. ND	G	ND		mg/L
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5.844	G	ND	G	ND	G	ND	G	ND		mg/L
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5.844	G	ND	G	ND	G	ND	G	ND		mg/L
5.844	G	ND	G	ND	G	ND	G	ND		mg/L
5.844	G	ND	G	. ND	G	ND	G	ND		mg/L
5.844	G	ND	G	ND	G	ND	G	ND		mg/L
5.844	G	ND	G	, ND	G	ND	G	ND		mg/L
5.844	G	ND	G	' ND	G	ND	G	ND		mg/L
5.844	G	ND	G	ND.	G	ND	G	ND		mg/L
5.844	G	ND	G	ND	G	ND	G	ND.		mg/L
5.844	G	ND	G	ND	G	ND	G	ND		mg/L
5.844	G	ND	G	. ND	G	ND	G	ND		mg/L
· 5.844	G	ND:	G	ND	G	ND	G	ND		mg/L
5.844	G	ND	G	ND	G	ND	G	ND		mg/L
5.844	Ġ	ND	G	ND	G	ND	·G	ND		mg/L
5.844	G	ND	G	ND	G	ND	G	ND		mg/L
5:844	G	ND	G	" ND	G	0.003	G	0.007		mg/L

INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with
	a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the
	person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted
	is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false
	information, including the possibility of fine and imprisonment for knowing violations.
	Print or type name of signing official:
	Title: Environmental Comptiance Manager Telephone: 362-6735
	Signature LIVI Isringhausen Date: 8/5/13

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AUG 0 6 2013

ANALYTE Biological Oxygen Demand (C) Biological Oxygen Demand (C) Total Suspended Solids (C) H (Std. pH Units) (G) Temperature, °C (G) Cli & Grease (G) ND ND ND ND ND ND ND ND ND N	ANIALVIE	004	002	OOE.	006	MQL
Chemical Oxygen Demand (C)						
Total Suspended Solids (C)						
PH (Std. pH Units) (G)						
Temperature, °C (G) Oil & Grease (G) ND ND ND ND ND ND Cadmium (C) ND ND ND ND ND ND Chromium (C) Oil 0.01 0.01 0.03 0.02 0.01 Chromium (C) Oil 0.01 0.03 0.02 0.01 Chromium (C) Oil 0.01 0.03 0.02 0.01 Chromium (C) Oil 0.01 0.03 0.02 0.01 Oil 0.01 Oil 0.01 0.01 Oil						<u> </u>
Oil & Grease (G) ND 37 ND N						
Total Cyanide (G)						
Cadmium (C) ND ND ND ND 0.01 Chromium (C) 0.01 0.01 0.03 0.02 0.01 Copper (C) 0.01 0.03 ND 0.02 0.01 0.01 Lead (C) 0.03 ND ND 0.01 0.01 0.01 Nickel (C) ND ND 0.01 0.01 0.01 0.01 Selenium (C) ND ND 0.01 ND 0.01 0.01 0.01 Silver (C) ND ND ND ND ND 0.01 0.01 Silver (C) ND ND ND ND ND 0.01 0.01 Silver (C) ND ND ND ND ND 0.01 <t< td=""><td>, ,</td><td></td><td></td><td></td><td></td><td></td></t<>	, ,					
Chromium (C)	3					
Copper (C) 0.01 0.03 0.02 0.01 0.01 Lead (C) 0.03 ND ND 0.01 0.01 0.01 Nickel (C) ND 0.06 0.01 0.01 0.01 Selenium (C) ND ND 0.02 ND ND 0.01 Silver (C) ND ND ND ND ND 0.01 Thallium (C) ND ND ND ND ND 0.01 Zinc (C) 0.06 0.21 0.07 0.04 0.01 Mercury (C) ND ND ND ND ND 0.00 1,1,2,7-richloroethane ND ND ND ND 0.00 1.1 0.005 1,1,2,2-Tetrachloroethane ND ND ND ND 0.005 1,1,2,2-Tetrachloroethane ND ND ND ND 0.005 1,1,2,2-Trichloroethane ND ND ND ND 0.005 1,2,2-Trichloroethane ND ND <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
Lead (C)	* *					
Nickel (C)						
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2,4,Dichlorophenol ND ND ND ND 0.010						
	- · ·					
2,4-Dimethylphenol ND ND ND 0.010						
	2,4-Dimethylphenol	ND	ND	ND	ND	0.010

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2,4-Dinitrophenol	ND	ND	ND	ND	0.020
2,4-Dinitrotoluene	ND	ND	ND	ND	0.010
2,6-Dinitrotoluene	ND	ND	ND	ND	0.010
2-Chlorophenol	ND	ND	ND	ND	0.010
2-Nitrophenol	ND	ND	ND	ND	0.020
3,3-Dichlorobenzidine	ND	ND	ND	ND	0.010
4-Chloro-3-methylphenol	ND	ND	ND.	ND	0.020
4-Nitrophenol	ND	ND	ND	ND	0.020
Acenaphthene	ND	ND	ND	ND	0.010
Acenaphthylene	ND	ND	ND	ND	0.010
Anthracene	ND	ND	ND	ND.	0.010
Azobenzene	ND	ND	ND	ND	0.010
Benzidine	ND	ND	ND	ND	0.041
Benzo(a)pyrene	ND	ND	ND	ND	0.010
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	0:010
Bis(2-chloroethyl)ether	ND	ND	ND	ND	0.010
Bis(2-chloroisopropyl)ether	ND	ND	ND	ND.	0.010
N-Nitrosodimethylamine	ND	ND	ND	ND	0.010
Phenol	ND	ND	ND	ND	0.005

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ANALYTE	007	800	009	MQL
Biological Oxygen Demand (C)	11	184	² 62	5 ,
Chemical Oxygen Demand (C)	33	476	252	10
Total Suspended Solids (C)	12	250	26	5
pH (Std. pH Units) (G)	8.48	8.04	8.00	
Temperature, °C (G)	29	28	25	
Oil & Grease (G)	ND	6	ND	5
Total Cyanide (G)	ND	ND	ND	0.01
Cadmium (C)	ND	ND	ND .	0.01
Chromium (C)	0.03	0.03	0.03	0.01
Copper (C)	0.01	0.02	0.02	0.01
Lead (C)	ND	ND	ND	0.01
Nickel (C)	0.01	0.01	ND	0.01
Selenium (C)	ND	0.01	0.01	0.01
Silver (C)	ND	ND	0.04	0.01
Thallium (C)	ND	ND	ND "	0.01
Zinc (C)	0.06	0.10	0.11	0.01
Mercury (C)	ND	ND	ND.	0.005
1,1,1,-Trichloroethane	ND	NĎ	ND	0.005
1,1,2,2-Tetrachloroethane	ND	ND	ND	0.005
1,1,2- Trichloroethane	ND	ND	ND	0.005
1,1-Dichloroethane	ND	ND	ND	0.005
1,1-Dichloroethene	ND	ND	ND	0.005
1,2,4-Trichlorobenzene	ND	ND	ND	0.005
1,2- Dichlorobenzene	ND	ND	ND	0.005
1,2-Dichloroethane	ND	ND	ND .	0.005
1,2- Dichloropropane	ND	ND	ND	0.005
1,3- Dichlorobenzene	ND	ND	ND	0.005
1,4- Dichlorobenzene	ND	ND	ND	0.005
2-Chloroethyl vinyl ether	ND	ND	ND	0.020
Acrolein	ND	ND	ND	0.10
Acrylonitrile	ND	ND	ND	0.005
Benzene	ND	ND	ND	0.002
Bromodichloromethane	ND	ND	ND	0.005
Bromomethane	ND	ND	ND	0.010
Carbon tetrachloride	ND	ND	ND	0.005
Chlorobenzene	ND	ND	ND	0.005
Chloroethane	ND	ND	ND	0.010
Chloroform	ND	ND	ND	0.005
Chloromethane	ND	ND	ND	0.005
cis-1,3 - Dichloropropene	ND	ND	ND	0.005
Dibromochloromethane	ND	ND	ND	0.005
Ethylbenzene	ND	ND	ND	0.005
Methylene chloride	ND	ND	ND	0.005
Naphthalene	ND	ND	ND	0.010
Nitrobenzene	ND	ND	ND	0.05
Tetrachloroethene	ND	ND	ND	0.005
Toluene	ND	ND	ND	0.005
trans-1,2-Dichloroethene	ND	ND	ND	0.005
trans-1,3-Dichloropropene	ND	ND	ND	0.005
Trichloroethene	ND	ND	ND	0.005
2,4,6-Trichlorophenol	ND	ND	ND	0.010
2,4,Dichlorophenol	ND	ND	ND	0.010
2,4-Dimethylphenol	ND	ND	ND	0.010

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2,4-Dinitrophenol	. ND	ND	ND	0.020
2,4-Dinitrotoluene	. ND	ND	ND	0.010
2,6-Dinitrotoluene	ND	ND	ND	0.010
2-Chlorophenol	ND	ND ·	ND	0.010
2-Nitrophenol	ND	ND	.ND	0.020
3,3-Dichlorobenzidine	ND	ND	.ND	0.010
4-Chloro-3-methylphenol	ND	ND	ND	0.020
4-Nitrophenol	ND	ND	ND	0.020
Acenaphthene	ND	ND	ND	0.010
Acenaphthylene	ND	ND	ND	0.010
Anthracene	ND	ND	ND	0.010
Azobenzene	ND	ND	ND	0.010
Benzidine	ND	ND	ND	0.041
Benzo(a)pyrene	ND	ND	ND	0.010
Bis(2-chloroethoxy)methane	ND	ND	ND	0.010
Bis(2-chloroethyl)ether	ND	ND	ND	0.010
Bis(2-chloroisopropyl)ether	ND	ND	ND	0.010
N-Nitrosodimethylamine	ND	ND	ND	0.010
Phenol	ND	ND	ND	0.005

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Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen REPORT OF TESTS

August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 1 of 12

SAMPLE ID:

WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M.

WASTEWATER COMPOSITE, SP001, 7/25/13, 8:55 A.M. - 3:15 P.M.

WASTEWATER GRAB, SP003, 7/25/13, 3:25 P.M.

WASTEWATER COMPOSITE, SP003, 7/25/13, 9:00 A.M. - 3:25 P.M.

WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M.

WASTEWATER COMPOSITE, SP005, 7/25/13, 8:50 A.M. - 3:00 P.M.

WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

WASTEWATER COMPOSITE, SP006, 7/25/13, 8:45 A.M. - 4:00 P.M.

Units: mg/L Except As Noted

ANALYTE '	SP001	SP003	SP005	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	52	37	. 55	19	5 .	5210 B	7/31/13
Chemical Oxygen Demand (C)	112	127	157	_, 58	10	5220 D	7/26/13
Total Suspended Solids (C)	46	22 .	70	21	5	160.2	7/29/13
pH (Std. pH Units) (G)	8.23	8.47	9.08	9.03	*****	150.1	7/25/13
Temperature, °C (G)	30.9	31.5	30.3	30.0	`	170.1	7/25/13
Oil & Grease (G)	ND	ND	ND	ND	5	1664	7/26/13
Total Cyanide (G)	0.045	ND -	ND	ND	0.01-	335.4	7/30/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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Attention: Livi Isringhausen

August 2, 2013

Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 2 of 12

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M.

WASTEWATER COMPOSITE, SP007, 7/25/13, 8:50 A.M. - 3:05 P.M.

WASTEWATER GRAB, SP008, 7/25/13; 3:40 P.M.

WASTEWATER COMPOSITE, SP008, 7/25/13, 9:30 A.M. – 3:40 P.M.

WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

WASTEWATER COMPOSITE, SP009, 7/25/13, 9:20 A.M. - 3:50 P.M.

Units: mg/L Except As Noted

ANALYTE	SP007	SP008	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS			
Biological Oxygen Demand (C)	73	102	177	5	5210 B	7/31/13			
Chemical Oxygen Demand (C)	235	272	340	10	5220 D	7/26/13			
Total Suspended Solids (C)	49	181	43	5	160.2	7/29/13			
pH (Std. pH Units) (G)	8.27	8.28	8.22	2022	150.1	7/25/13			
Temperature, °C (G)	31.4	30.4	29.2		170.1	7/25/13			
Oil & Grease (G)	ND	5	8	5	1664	7/26/13			
Total Cyanide (G)	0.034	0.010	ND	0.01	335.4	7/30/13			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 3 of 12

REPORT OF TESTS

SAMPLE ID: WASTEWATER COMPOSITE, SP001, 7/25/13, 8:55 A.M. – 3:15 P.M.

WASTEWATER COMPOSITE, SP003, 7/25/13, 9:00 A.M. – 3:25 P.M. WASTEWATER COMPOSITE, SP005, 7/25/13, 8:50 A.M. – 3:00 P.M. WASTEWATER COMPOSITE, SP006, 7/25/13, 8:45 A.M. – 4:00 P.M.

Units: mg/L

ANALYTE .	SP001	SP003	SP005	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Cadmium (C)	ND	, ND	ND	ND	0.01	200.8	7/30/13
Chromium (C)	ND	ND	ND	ND	0.01	200.8	7/30/13
Copper (C)	0.02	0.01	0.03	0.02	0.01	200.8	7/30/13
Lead (C)	ND	ND	ND	0.01	0.01	200.8	7/30/13
Nickel (C)	ND	ND	ND	ND	0.01	200.8	7/30/13
Selenium (C)	ND	ND	ND.	ND	0.01	200.8	7/30/13
Silver (C)	ND	0.03	ND	ND	0.01	200.8	7/30/13
Thallium (C)	ΝD	ND	ND	ND	0.01	200.8	7/30/13
Zinc (C)	0.05	0.04	0.08	0.05	0.01	200.8	7/30/13
Mercury (C)	ND	ND	ND	ND	0.005	200.8	7/30/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 4 of 12

REPORT OF TESTS

WASTEWATER COMPOSITE, SP007, 7/25/13, 8:50 A.M. - 3:05 P.M. SAMPLE ID:

WASTEWATER COMPOSITE, SP008, 7/25/13, 9:30 A.M. – 3:40 P.M. WASTEWATER COMPOSITE, SP009, 7/25/13, 9:20 A.M. - 3:50 P.M.

Units: mg/L

oma. mg.								
ANALYTE	SP007	SP008	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS		
Cadmium (C)	ND	ND	ND	0.01	200.8	7/30/13		
Chromium (C)	ND	ND	ND	0.01	200.8	7/30/13		
Copper (C)	0.02	0.03	0.03	0.01	200.8	7/30/13		
Lead (C)	0.01	ND	ND	0.01	200.8	7/30/13		
Nickel (C)	, ND	ND.	ND	0.01	200.8	7/30/13		
Selenium (C)	ND	ND	ND	0.01	200.8	7/30/13		
Silver (C)	ND	0.02	0.08	0.01	200.8	7/30/13		
Thallium (C)	ND	ND	ND	0.01	200.8	7/30/13		
Zinc (C)	0.07	0.08	0.06	0.01	200.8	7/30/13		
Mercury (C)	ND	ND	ND	0.005	200.8	7/30/13		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

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Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M.

WASTEWATER GRAB, SP003, 7/25/13, 3:25 P.M. WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M. WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

Units: mg/L

VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001 🗸	SP003 🗸	SP005√	SP006 🗸	MQL
1,1,1-Trichloroethane	ND	. ND	ND	ND	0.005
1,1,2,2-Tetrachloroethane	ND	ND	ND .	ND ·	0.005
-1,1,2-Trichloroethane	ND	ND ,	ND -	ND	0.005
1,1-Dichloroethane	ND ,	ND	ND	ND	0.005
1,1-Dichloroethene	ND	ND	ND	ND	0.005
-1,2-Dichlorobenzene	ND .	ND	ND	ND	0.005
1,2-Dichloroethane	ND	ND	ND	ND	0.005
1,2-Dichloropropane	ND	ND	ND	ND	0.005
1,3-Dichlorobenzene	ND	ND	ND .	ND	0.005
-1,4-Dichlorobenzene	ND	ND	ND	ND	0.005
2-Chloroethyl vinyl ether	ND	ND	ŃD	ND	0.020
-Acrolein	ND	ND	ND	ND	0.10
-Acrylonitrile	ND	ND	ND	ND	0.005
Benzene	ND	ND	ND	ND	0.002
Bromodichloromethane	ND	ND	ND	0.0012 (J)	0.005
Bromomethane	ND	ND	ND	ND	0.010
-Carbon tetrachloride	ND	ND -	ND	ND	0.005
Chlorobenzene	ND	ND	ND	ND	0.005
Chloroethane	ND	ND	ND	ND	0.010
-Chloroform	0.0015 (J)	0.0031 (J)	0.015	0.0041 (J)	0.005
Chloromethane	ND	ND	ND	ND	0.010
-cis-1,3 - Dichloropropene	ND	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/624 E C E I V E D
Date of Analysis: 7/29/13 E C E I V E D

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 6 of 12

REPORT OF TESTS

WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M. SAMPLE ID:

WASTEWATER GRAB, SP003, 7/25/13, 3:25, P.M. WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M. WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

Units: mg/L

VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
Dibromochloromethane	ND	ND ·	ND ·	ND	0.005
Ethylbenzene	ND	0.0041 (J)	0.0032 (J)	ND	0.005
-Methylene chloride	ND	ND ·	0,0077	ND	0.005
Tetrachloroethene	ND ·	ND-	ND ·	" ND	0.005
-Toluene ;	ND	ND	ND	ND	0.005
trans-1,2-Dichloroethene	· ND	ND	ND	ND	0.005
trans-1,3-Dichloropropene	ND	ND	ND	· ND	0.005
-Trichloroethene	ND	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL

(J): Analyte Detected Below the MQL

Test Method: EPA 600/624 Date of Analysis: 7/29/13

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 9 of 12

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M.

WASTEWATER GRAB, SP003, 7/25/13, 3:25 P.M. WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M. WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001 √	SP003 🗸	· SP005 √	SP006 √	MQL
1,2,4-Trichlorobenzene	ND	ND	ND	ND	0.01
-1,2- Diphenylhydrażine	ND	ND 11	ND .	ND	0.01
-2,4,6-Trichlorophenol	ND	ND	ND	ND	0.01
-2,4,Dichlorophenol	ND ,	ND	ND	ND .	0.01
2,4-Dimethylphenol	ND :	ND .	: ND	ND	0.01
-2,4-Dinitrophenol	ND	ND	ND	ND	0.02
2,4-Dinitrotoluene	ND"	ND	ND	ND	0.01
- 2,6-Dinitrotoluene	ND	ND ·	ND	ND	0.01
-2-Chlorophenol	ND ·	ND	ND	ND	0.01
-2-Nitrophenol	ND	ND	ND	ND	0.02
3,3-Dichlorobenzidine	ND	ND	ND	ND	0.01
4-Chloro-3-methylphenol	· ND	ND	ND	ND	0.02
4-Nitrophenol	ND	ND	ND	ND	0.02
- Acenaphthene	ND	ND	ND	ND	0.01
Acenaphthylene	ND	ND	ND	ND	0.01
-Anthracene	ND	ND	ND	ND	0.01
Azobenzene	ND	ND .	ND	ND	0.01
Benzidine	ND	ND	ND	ND	0.01
-Benzo(a)pyrene	ND	ND	-ND (ND	0.01

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 10 of 12

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M.

WASTEWATER GRAB, SP003, 7/25/13, 3:25 P.M. WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M. WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
Bis(2-chloroethoxy)methane	ND	. ND	ND ;	ND .	0.01
Bis(2-chloroethyl)ether	ND	ND.	ND	ND	0.01
Bis(2-chloroisopropyl)ether	ND	ND	.ND	. ND	. 0.01
-Naphthalene	ND	ND	ND	ND	0.01
Nitrobenzene	, ND	ND	ND	ND	0.01
N-Nitrosodimethylamine	ND	ND	ND	, ND	0.02 .
Phenol	ND	ND	. ,ND ,	·ND	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 7 of 12

REPORT OF TESTS

WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M. **SAMPLE ID:**

WASTEWATER GRAB, SP008, 7/25/13, 3:40 P.M. WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

Units: ma/L **VOLATILE ORGANIC COMPOUNDS**

Onks: mg/L VOLA	TIG/L VOLATILE ORGANIC CONPOUNDS					
ANALYTE	⊆ SP007√.	SP008√	SP009	MQL		
1,1,1-Trichloroethane	ND	· ND	ND	0.005		
1,1,2,2-Tetrachloroethane	ND ·	ND	ND ,	0.005		
-1,1,2-Trichloroethane	ND	ND	ND	0.005		
1,1-Dichloroethane	ND	ND	ND	0.005		
1,1-Dichloroethene	ND	[:] ND	ND	0.005		
1,2-Dichlorobenzene	ND	ND	ND ·	0.005		
1,2-Dichloroethane	ND	ND	ND	0.005		
1,2-Dichloropropane	· ND	ND	ND	0.005		
1,3-Dichlorobenzene	ND.	ND.	, ND	0.005		
1,4-Dichlorobenzene	ND	ND	ND	0.005		
2-Chloroethyl vinyl ether	ND	ND	ND	0.020		
Acrolein	ND	ND	ND	0.10		
Acrylonitrile	ND	ND	ND	0.005		
-Benzene	ND	ND	ND	0.002		
Bromodichloromethane	ND .	ND	ND	0.005		
Bromomethane	ND	ND	ND	0.010		
Carbon tetrachloride	ND	ND	ND	0.005		
Chlorobenzene	ND	ND	ND	0.005		
Chloroethane	ND	ND	ND ·	0.010		
Chloroform	0.0016 (J)	0.0012 (J)	ND	0.005		
Chloromethane	ND	ND	ND	0.010		
cis-1,3 – Dichloropropene	ND	ND	ND	0.005		

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/62 RECEIVED

Date of Analysis: 7/29/13

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 8 of 12

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M. WASTEWATER GRAB, SP008, 7/25/13, 3:40 P.M. WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

Units: mg/L

VOLATILE ORGANIC COMPOUNDS

	ANALYTE	SP007	SP008	SP009	MQL
	Dibromochloromethane .	ND	. ND	ND	0.005
4	Ethylbenzene	, ND 🕔	. ND	ND	0.005
-	Methylene chloride	ND	· · ND	ND	0.005
	Tetrachloroethene	. ND	ND	ND	0.005
\dashv	-Toluene	ND	ND	ND	0.005
	trans-1,2-Dichloroethene	ND	ND	ND	0.005
	trans-1,3-Dichloropropene	· ND	ND	ND	0.005
-	Trichloroethene	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 7/29/13

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 11 of 12

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M. WASTEWATER GRAB, SP008, 7/25/13, 3:40 P.M. WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

SEMI-VOLATILE ORGANIC COMPOUNDS Units: mg/L

ANALYTE	SP007 J	SP008 /	SP009	MQL-
1,2,4-Trichlorobenzene	ND	ND	ND	0.01
1,2- Diphenylhydrazine	ND	ND	ND	0.01
2,4,6-Trichlorophenol	ND	ND	· ND	0,.01
-2,4,Dichlorophenol	ŅD	ND .	ND	0.01
2,4-Dimethylphenol	ND	ND	ND	0.01
-2,4-Dinitrophenol	ND	ND	ND	0.02
-2,4-Dinitrotoluene	ND	ND	ND	0.01
2,6-Dinitrotoluene	. ND	ND	ND	0.01
2-Chlorophenol	ŅD	ND	ND	0.01
2-Nitrophenol	ND	ND	ND	0.02
3,3-Dichlorobenzidine	ND	ND	ND	0.01
4-Chloro-3-methylphenol /	ND	ND	ND	0.02
4-Nitrophenol	ND	ND	ND .	0.02
Acenaphthene	ND	ND	ND	0.01
-Acenaphthylene	ND	ND	ND	0.01
-Anthracene	ND	ND	ND	0.01
Azobenzene	- ND	ND	ND	0.01
Benzidine	ND	ND	ND	0.01
Benzo(a)pyrene	ND	ND	ND	0.01

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 12 of 12

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M. WASTEWATER GRAB, SP008, 7/25/13, 3:40 P.M. WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	SP008	SP009	MQL
-Bis(2-chloroethoxy)methane	ND	ND	ND	0.01
-Bis(2-chloroethyl)ether	ND	ND ·	ND	0.01
-Bis(2-chloroisopropyl)ether	ND "	ND	ND.	0.01
-Naphthalene	ND	ND	ND ,	0.01
Nitrobenzene	ND	ND	ND	0.01
N-Nitrosodimethylamine	ND	ND	· ND	0.02
Phenol	ND	0.003 (J)	0.007	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL (J): Analyte Detected Below the MQL Test Method: EPA 600/625 Date of Analysis: 7/29/13

SR/als

Steve Root, Manager Environmental Testing

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August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 9 of 12 (Revised Report 8/19/13)

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M.

WASTEWATER GRAB, SP003, 7/25/13, 3:25 P.M. WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M. WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
1,2,4-Trichlorobenzene	ND `	ND	ND	ND	0.01
1,2- Diphenylhydrazine	ND	ND	ND	. ND	0.01
2,4,6-Trichloropheñol	ND	ND	ND	ND	0.01
2,4,Dichlorophenol	ND	ND	··· ND	ND	0.01
2,4-Dimethylphenol 、	ND	1 ND	ND	, ND	0.01
2,4-Dinitrophenol	ND	ND 1	ND	ND	Q.02
2,4-Dinitrotoluene	ND	ND	ND	: ND	0.01
2,6-Dinitrotoluene	ND	ND	ND	ND	0.01
2-Chlorophenol	ND	ND	ND	ND	0.01
2-Nitrophenol	ND	ND	ND	ND	0.02
3,3-Dichlorobenzidine	NĎ	ND	ND	ND	0.01
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND .	0.02
4-Chloro-3-methylphenol	ND	ND	ND	ND	0.02
4-Nitrophenol	ND	ND	ND	ND	0.02
Acenaphthene	ND	ND	ND	ND	0.01
Acenaphthylene	ND	ND	ND .	ND	0.01
Anthracene	ND	ND	ND ·	ND	0.01
Azobenzene	ND	ND	ND	ND	0.01
Benzidine	ND	ND	ND	ND	0.01
Benzo(a)pyrene	. ND	ND	ND	ND	0.01

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 10 of 12 (Revised Report 8/19/13)

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 7/25/13, 3:15 P.M.

WASTEWATER GRAB, SP003, 7/25/13, 3:25 P.M. WASTEWATER GRAB, SP005, 7/25/13, 3:00 P.M. WASTEWATER GRAB, SP006, 7/25/13, 4:00 P.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	0.01
Bis(2-chloroethyl)ether	ND	. ND.	ND	ND	0.01
Bis(2-chloroisopropyl)ether	ND	ND	ND .	ND	0.01
Naphthalene	ND.	ND	ND .	ND	0.01
Nitrobenzene	ND	ND	ND .	, ND	0.01
N-Nitrosodimethylamine	ND	ND	ND .	ND .	0.02
Pentachlorophenol)	ND	ND	. ND	ND	0.02
Phenol	. ND	ND	ND	. ND	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service:

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 11 of 12 (Revised Report 8/19/13)

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M.

WASTEWATER GRAB, SP008, 7/25/13, 3:40 P.M. WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	SP008	SP009	MQL
1,2,4-Trichlorobenzene	ND	ND	ND	0.01-
1,2- Diphenylhydrazine	ND	ND	ND	0.01
2,4,6-Trichlorophenol	. ND	ND	ND	0.01
2,4,Dichlorophenol	ND	ND	ND	0.01
2,4-Dimethylphenol <	ND	ND	ND	0.01
2,4-Dinitrophenol	ND	ND	ND	0.02
2,4-Dinitrotoluene	ND	ND	ND.	0.01
2,6-Dinitrotoluene	ND	ND .	ND	0.01
2-Chlorophenol	ND	ND	ND	0.01
2-Nitrophenol	ND	∧ ND	. ND	0.02
3,3-Dichlorobenzidine	ND	· ND	ND	0.01
4,6-Dinitro-2-methylphenol	. ND	ND	ND	0.02
4-Chloro-3-methylphenol	ND '	ND	ND	0.02
4-Nitrophenol	ND	ND	ND	0.02
Acenaphthene	ND	ND	ND	0.01
Acenaphthylene	ND	ND	ND	0.01
Anthracene	. ND	ND	ND	0.01
Azobenzene	ND	ND	ND	0.01
Benzidine	ND	ND	ND	0.01
Benzo(a)pyrene	ND	ND	ND	0.01

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

August 2, 2013 Lab No. 13E-1457 Invoice No. 169926 P.O. No.2920867X Page 12 of 12 (Revised Report 8/19/13)

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/25/13, 3:05 P.M. WASTEWATER GRAB, SP008, 7/25/13, 3:40 P.M.

WASTEWATER GRAB, SP009, 7/25/13, 3:50 P.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	SP008	SP009	MQL
Bis(2-chloroethoxy)methane	:ND	ND	ND '	0.01
Bis(2-chloroethyl)ether	ND ,	ND	ND	0.01
Bis(2-chloroisopropyl)ether	ND	· ND	ND ,	0.01
Naphthalene	ND	ND	ND	0.01
Nitrobenzene	ND	ND ,	ND	0.01
N-Nitrosodimethylamine	ND .	ND	ND	0.02
Pentachlorophenol ->	ND	· ND	ND .	0.02
Phenol >	- ND	0.003 (J) ⁻	0.007	0.005

MQL: Minimum Quantitative Limit ND None Detected Above MQL

(J): Analyte Detected Below the MQL

Test Method: EPA 600/625 Date of Analysis: 7/29/13

SR/als

Steve Root, Manager Environmental Testing



SR V

METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I:	IDENTIF	YING INFORMATIO	N 1024-3530	-00	
Company Nan	ne: Washingto	n University Medical Scho			
Permit No:					
Premise Addre	ess: 660 South	Euclid, St. Louis, MO 631	10		
Reporting Peri	od: 2013	[] (JAN-MAR)	(APR-JUN)	[] (JUL-SEP)	OCT-DEC
PART II:	RECORD	OF DISPOSAL OF R	ADIOACTIVE MATER	HALS TO THE SEWER	•
	RAD	IONUCLIDE	ACTIVITY DI	SCHARGED (millicuries)	
C-14					0.0872
H-3					0.2447
I-125					0.1118
P-32					0.1740
S-35	***	72. QL			0.0129
	TOTAL A	CTIVITY DISCHARGE	D:		0.6306
Everyone mu	st complete th	,	ems A & B and sign this	-	
gov	erning disposal	by release into sanitary se	pelief, all requirements of 1 wage for material regulated have been met for the peri	0 CFR Part 20.2003 and 19 is the Nuclear Regulatory od covered by this report.	CSR Part 20-10.090 Commission and the
B. RAD	IOACTIVE M	IATERIALS DISCHAF	RGE REPORT CERTIFI	CATION	
system designe the person or p submitted is to submitting falso	d to assure that ersons who mar the best of my l e information, in	qualified personnel prope nage the system, or those p knowledge and belief, true	rly gather and evaluate the persons directly responsible	under my direct supervision information submitted. Base for gathering the information am aware that there are sign knowing violations.	ed on my inquiry of on, the information
	Safety Speciali		Telephone:	(314) 362-4968	
Signature:	ald had	fel	Date: 07/16	5/2013 .	

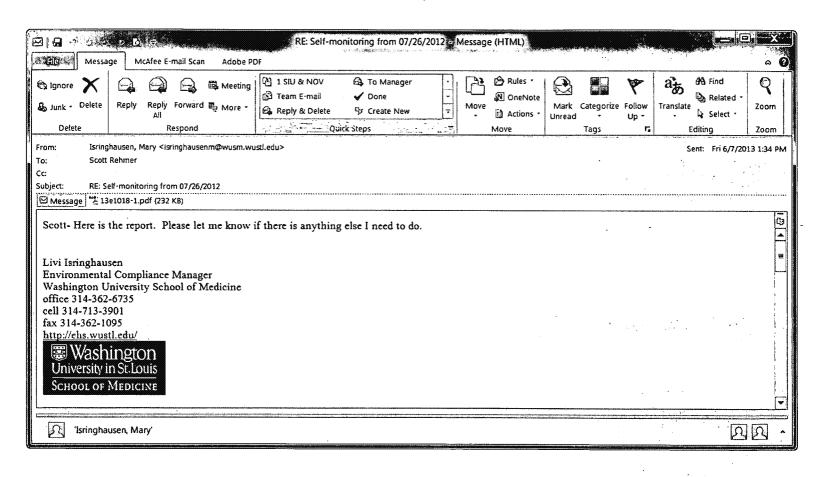
RECEIVED

RE: radrpt.doc 2/00

JUL 18 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE

WASH. U. Med. School 1024-3530-00 5R 6/7/13 6/10/13 1





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 1 of 8

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP001, 5/30/13, 9:00 A.M. WASTEWATER GRAB, SP003, 5/30/13, 9:05 A.M. WASTEWATER GRAB, SP005, 5/30/13, 8:50 A.M. WASTEWATER GRAB, SP006, 5/30/13, 8:45 A.M.

Units: mg/L

VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
1,1,1-Trichloroethane	ND	ND	ND	ND	0.005
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0.005
1,1,2-Trichloroethane	ND	ND	ND	ND	0.005
1,1-Dichloroethane	ND	ND	ND	ND	0.005
1,1-Dichloroethene	:ND	ND	ND	ND	0.005
1,2-Dichlorobenzene	ND	ND	ND	ND	0.005
1,2-Dichloroethane	ND	ND	ND	ND	0.005
1,2-Dichloropropane	ND	ND	ND	ND	0.005
1,3-Dichlorobenzene	ND	ND	ND	ND	0.005
1,4-Dichlorobenzene	ND	ND	ND	ND	0.005
2-Chloroethyl vinyl ether	ND	ND	ND	ND	0.020
Acrolein	ND	, ND	ND	ND	0.100
Acrylonitrile	ND	ND	ND	ND	0.005
Benzene	ND	ND	NĎ	ND	0.002
Bromodichloromethane	ND	ND	ND	ND	0.005
Bromomethane	ND	ND	ND	ND	0.010
Carbon tetrachloride	ND	ND	ND	ND	0.005
Chlorobenzene	ND	ND	ND	ND	0.005
Chloroethane	ND	ND	ND	ND	0.010
Chloroform	ND	0.0035 (J)	0.0034 (J)	0.0059	0.005
Chloromethane	ND	ND	· ND	ND .	0.010
cis-1,3 – Dichloropropene	ND	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(J): Analyte Detected Below the MQL

Test Method: EPA 600/624 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 2 of 8

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTE

WASTEWATER GRAB, SP001, 5/30/13, 9:00 A.M. WASTEWATER GRAB, SP003, 5/30/13, 9:05 A.M. WASTEWATER GRAB, SP005, 5/30/13, 8:50 A.M. WASTEWATER GRAB, SP006, 5/30/13, 8:45 A.M.

Units: mg/L

VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
Dibromochloromethane	ND	ND	ND	ND	0.005
Ethylbenzene	ND	0.0026 (J)	ND	ND	0.005
Methylene chloride	ND	ND	ND	ND	0.005
Tetrachloroethene	ND	ND	ND	ND	0.005
Toluene	ND	ND	ND	ND	0.005
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.005
trans-1,3-Dichloropropene	ND	ND	ND	ND	0.005
Trichloroethene	ND	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(J): Analyte Detected Below the MQL

Test Method: EPA 600/624 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 5 of 8

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP001, 5/30/13, 9:00 A.M. WASTEWATER GRAB, SP003, 5/30/13, 9:05 A.M. WASTEWATER GRAB, SP005, 5/30/13, 8:50 A.M. WASTEWATER GRAB, SP006, 5/30/13, 8:45 A.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
1,2,4-Trichlorobenzene	ND	ND	ND	ND	0.046
1,2- Diphenylhydrazine	ND	ND	ND	ND	0,046
2,4,6-Trichlorophenol	ND	ND	ND	ND ·	0.046
2,4,Dichlorophenol	ND	ND	ND	ND	0.093
2,4-Dimethylphenol	ND	ND ·	ND	ND	0.046
2,4-Dinitrophenol	ND	ND	ND	ND	0.046
2,4-Dinitrotoluene	NĎ	ND	ND	ND	0.046
2,6-Dinitrotoluene	ND	ND	ND	ND	0.046
2-Chlorophenol	ND	ND	ND	ND	0.046
2-Nitrophenol	ND	ND	ND	ND	0.093
3,3-Dichlorobenzidine	ND	ND	ND	ND	0.046
4-Chloro-3-methylphenol	ND	ND	ND	ND	0.093
4-Nitrophenol	ND	ND	ND	ND	0.093
Acenaphthene	ND	ND	ND	ND	0.046
Acenaphthylene	ND	ND	ND	ND.	0.046
Anthracene	ND	ND	ND	ND	0.046
Azobenzene	ND	ND	ND	ND	0.046
Benzo(a)pyrene	ND	ND	ND	ND	0.046

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 6 of 8

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 5/30/13, 9:00 A.M.

WASTEWATER GRAB, SP003, 5/30/13, 9:05 A.M. WASTEWATER GRAB, SP005, 5/30/13, 8:50 A.M. WASTEWATER GRAB, SP006, 5/30/13, 8:45 A.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001	SP003	SP005	SP006	MQL
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	0.046
Bis(2-chloroethyl)ether	ND	ND	ND	ND	0.046
Bis(2-chloroisopropyl)ether	ND	ND	ND	ND	0.046
Naphthalene	ND	ND	ND	ND	0.046
Nitrobenzene	ND	ND	ND	ND	0.046
N-Nitrosodimethylamine	ND	ND	ND	ND	0.093
Phenol	ND	ND	ND	ND	0.023

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 3 of 8

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 5/30/13, 8:55 A.M.

WASTEWATER GRAB, SP008, 5/30/13, 9:10 A.M. WASTEWATER GRAB, SP009, 5/30/13, 9:15 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	SP008	SP009	MQL
1,1,1-Trichloroethane	ND	ND	ND	0.005
1,1,2,2-Tetrachloroethane	ND	ND	ND	0.005
1,1,2-Trichloroethane	ND	ND	ND .	0.005
1,1-Dichloroethane	ND	ND	ND	0.005
1,1-Dichloroethene	ND	ND	ND	0.005
1,2-Dichlorobenzene	ND	ND	ND	0.005
1,2-Dichloroethane	ND	ND	ND	0.005
1,2-Dichloropropane	ND	ND .	ND	0.005
1,3-Dichlorobenzene	ND	ND	ND	0.005
1,4-Dichlorobenzene	· ND	ND	ND	0.005
2-Chloroethyl vinyl ether	ND	ND	ND	0.020
Acrolein	ND	ND	ND	0.100
Acrylonitrile	ND	ND	ND.	0.005
Benzene	ND	ND	ND	0.002
Bromodichloromethane	ND	ND	ND	0.005
Bromomethane	ND	ND	ND	0.010
Carbon tetrachloride	ND	ND	ND .	0.005
Chlorobenzene	ND	ND	ND	0.005
Chloroethane	ND	ND	ND	0.010
Chloroform	0.0017 (J)	0.0031(J)	ND	0.005
Chloromethane	ND	, ND	ND	0.010
cis-1,3 - Dichloropropene	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(J): Analyte Detected Below the MQL

Test Method: EPA 600/624 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 4 of 8

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 5/30/13, 8:55 A.M. WASTEWATER GRAB, SP008, 5/30/13, 9:10 A.M. WASTEWATER GRAB, SP009, 5/30/13, 9:15 A.M.

Units: mg/L

VOLATILE ORGANIC COMPOUNDS

ANALYTE ·	SP007	SP008	SP009	MQL
Dibromochloromethane	ND	ND	ND	0.005
Ethylbenzene	ND	ND	ND	0.005
Methylene chloride	ND	ND	ND	0.005
Tetrachloroethene	ND	ND	ND	∙0.005
Toluene	ND	ND	ND	0.005
trans-1,2-Dichloroethene	ND	ND ·	ND	0.005
trans-1,3-Dichloropropene	ND	ND	ND	0.005
Trichloroethene	ND	ND	ND	0.005

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 7 of 8

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WAS

WASTEWATER GRAB, SP007, 5/30/13, 8:55 A.M. WASTEWATER GRAB, SP008, 5/30/13, 9:10 A.M. WASTEWATER GRAB, SP009, 5/30/13, 9:15 A.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

Omia. mg/c Ocimi	VOLAIILL OI			
ANALYTE	SP007	SP008	SP009	MQL
1,2,4-Trichlorobenzene	ND	ND	ND	0.046
1,2- Diphenylhydrazine	ND	ND	ND	0.046
2,4,6-Trichlorophenol	ND	ND	ND	0.046
2,4,Dichlorophenol	ND	ND	ND	0.093
2,4-Dimethylphenol	ND	ND	ND	0.046
2,4-Dinitrophenol	ND	ND	ND	0.046
2,4-Dinitrotoluene	ND	ND	ND	0.046
2,6-Dinitrotoluene	ND	- ND	ND	0.046
2-Chlorophenol	ND	ND	ND	0.046
2-Nitrophenol	ND	ND	ND	0.093
3,3-Dichlorobenzidine	ND	ND	ND	0.046
4-Chloro-3-methylphenol	ND	ND	ND .	0.093
4-Nitrophenol	ND	ND	ND	0.093
Acenaphthene	ND	ND	ND	0.046
Acenaphthylene	ND	ND	ND	0.046
Anthracene	ND	ND	. ND	0.046
Azobenzene	ND .	ND	ND	0.046
Benzo(a)pyrene	ND	ND	ND	0.046

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 6/3/13





Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 June 7, 2013 Lab No. 13E-1018 Invoice No. 167434 Page 8 of 8

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID:

WASTEWATER GRAB, SP007, 5/30/13, 8:55 A.M. WASTEWATER GRAB, SP008, 5/30/13, 9:10 A.M. WASTEWATER GRAB, SP009, 5/30/13, 9:15 A.M.

Units: mg/L

SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP007	SP008	SP009	MQL
Bis(2-chloroethoxy)methane	ND	ND	ND	0.046
Bis(2-chloroethyl)ether	ND	ND	ND	0.046
Bis(2-chloroisopropyl)ether	ND	ND	ND	0.046
Naphthalene	ND	ND	ND	0.046
Nitrobenzene	ND	ND	ND	0.046
N-Nitrosodimethylamine	ŅD	ND	ND	0.093
Phenol	ND	ND	ND	0.023

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Test Method: EPA 600/625 Date of Analysis: 6/3/13

SR/als

Steve Root, Manager Environmental Testing





Scott Rehmer

Wash U. Med SCHOOL

From:

Scott Rehmer

1024-3530-00

Sent:

Friday, May 10, 2013 1:17 PM

To:

'Isringhausen, Mary' (isringhausenm@wusm.wustl.edu)

Subject:

Self-monitoring from 07/26/2012

Hi Livi.

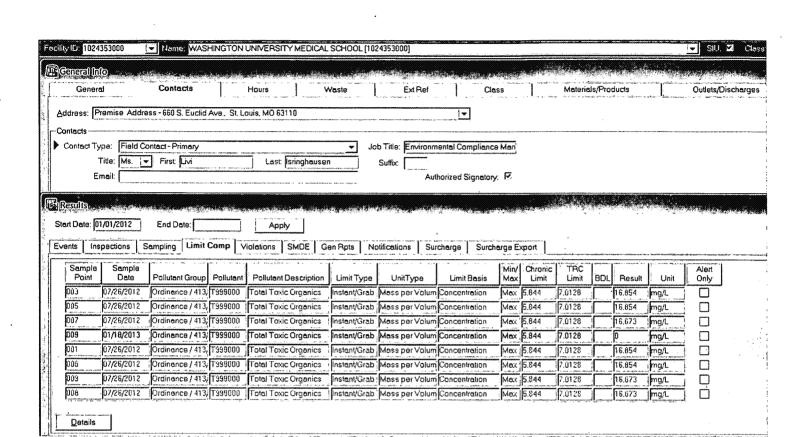
I am following up on the voicemail that I left you today. The third quarter 2012 samples analyzed by your lab resulted in an elevated TTO (total toxic organics). The ordinance limit is 5.844 mg/L and, for all seven sample points, the result was < 17 mg/L. We apologize for the oversight. While this is not a violation, it is failure to demonstrate compliance. This was due in large part to the analytical lab reporting high detection limits.

For future analyses, you will need to instruct your testing lab to reach lower detection limits in order to show compliance with all discharge limits. We also recommend that you continue to sample early in the quarter, in order to reduce any issue regarding the reporting limits, should resampling be necessary. If another such incident occurs, and if there is failure to take these steps, then this may result in MSD imposing specified requirements and possibly placing your facility in Significant Noncompliance for failure to properly monitor.

Please collect TTO samples for all seven sample points (001, 003, 005, 006, 007, 008, 009) in this second quarter 2013, no later than June 30, 2013. This will represent the (missed) third quarter 2012. Then you may continue sampling in the third quarter 2013 for TTO, per the annual requirement.

If you have any questions, please contact me at 314.436.8756.

Scott Rehmer, MSD



Jason Gill

From:

Isringhausen, Mary <isringhausenm@wusm.wustl.edu>

Sent:

Thursday, March 07, 2013 11:16 AM

To:

Jason Gill

Subject:

updated solvent list

Attachments:

solvent list 2013.xls

Livi Isringhausen Environmental Compliance Manager Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095



The materials in this message are private and may contain Protected Healthcare Information or other information of a sensitive nature. If you are not the intended recipient, be advised that any unauthorized use, disclosure, copying or the taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this email in error, please immediately notify the sender via telephone or return mail.

Washington University Nedical School (0243530-00

aceticacid ethyl ester acetone acetonitrile acrylamide Benzenamine benzene butanol carbon tetrachloride chloroform cyclohexane cyclohexanone dichlorobenzene dichloroethane dichloroethane ethyl acetate ethyl ether formaldehyde isobutanol methyl alcohol oil pyridine tetrachlorethylene tetrahydrofuran toluene trichlorethylene xylene

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Effective:

1/1/2013

Expiration:

12/31/2017

Premise Address: Monitoring Period: 660 South Euclid Ave., St. Louis, MO, 63110

2013

(Jan-Mar) V

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By:

St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	er		001		003		005		unnastannasiannasiannästitannasiannasia
Dates on Which Samples Were Colle	cted	G: C:	4/25/2013 4/25/2013		4/25/2013 4/25/2013	G: C:	4/25/2013 4/25/2013		
Times at Which Samples Were Collect	cted	G: C:	8:10 AM 8:10am - 3:36pm	G: C:	8:55 a.m. 8:55am -3:48 pm	G: C:	7:57am 7:57 am - 3:04 pm	<u> </u>	
			Record Sample	Туре	s (G,C,M, or E)	And R	tesults Below		
PARAMETER	LIMIT		G=grab, C-comp	osite,	M=measured flo	ow, E=	estimated flow		Units
Flow	***	E	14,500	E	64,500	E.	340,000		Gal/Day
Biological Oxygen Demand	***	С	54	С	360	С	127		mg/L
Chemical Oxygen Demand	***	С	116	С	531	С	223		mg/L
Total Suspended Solids	***	С	94	С	25	С	85		mg/L
pH	5.5 - 11.5	G	8.87	G	8.23	G	9.01		рН
Oil & Grease	200	G	ND	G	144	G	ND		mg/L
Temperature	60	G	20	G	19.4	G	19.9		Celcius
Silver	0.5	С	ND	С	ND	С	ND		mg/L
Total Phenol	7	G	ND	G	0.439	G	ND		mg/L
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You must complete and sign the certification statements on the reverse side.

MAY 0 3 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
!	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Print or type name of signing official:
	Signature W. Date: 5/3/13
	Signature Date: O/31

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I: IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2013

(Jan-Mar) √

√ (Apr-June) (July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	r		006		007		800	Ī	009	
Dates on Which Samples Were Collec	ted	G: C:	4/25/2013 4/25/2013	G: C:	4/25/2013 4/25/2013	G: C:	4/25/2013 4/25/2013	G: C:	4/25/2013 4/25/2013	
Times at Which Samples Were Collect	ted	G: 7:48 AM G: 8:04 AM G: 8:20 AM G: 8:25 AM								
		Reco	ord Sample Type	es (G,	C,M, or E) And	Result	s Below			
PARAMETER	LIMIT		ab, C-composit	~~~~	measured flow,	E=est	imated flow	·		Units
Flow	***	E	950	E	23,500	ļ	131,850	<u> </u>	131,850	Gal/Day
Biological Oxygen Demand	***	C	14	<u>C</u>	68		440		123	mg/L
Chemical Oxygen Demand	****	С	46	С	140		5529		289	mg/L
Total Suspended Solids	***	С	12	<u></u>	85		458		243	mg/L
рН	5.5 - 11.5	G	8.82	G	9.12	l	8.57		9.66	рН
Oil & Grease	200	G	ND	G	ND		20		15	mg/L
Temperature	60	G	15.9	G	20.3		18.7		23.5	Celcius
Silver	0.5	С	ND	С	ND		ND		ND	mg/L
Total Phenol	7	G	ND	G	ND	G:	ND	G:	ND	mg/L
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You must complete and sign the certification statements on the reverse side.



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 1 of 7

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 4/25/13, 8:10 AM

WASTEWATER COMPOSITE, SP 001, 4/25/13, 8:10 AM - 3:36 PM

Units: mg/L except as noted

The major oxecopt do noted						
ANALYTE	001	MQL	METHOD NUMBER	DATE OF ANALYSIS		
Biological Oxygen Demand (C)	54	5	5210 B	- 5/1/13		
Chemical Oxygen Demand (C)	116	10	5220 D	4/26/13		
Total Suspended Solids (C)	94	5	160.2	4/29/13		
pH, S.U. (G)	8.87		150.1	4/25/13		
Temperature, °C (G)	20	35a can nao sor	170.1	4/25/13		
Oil & Grease (G)	ND	5	1664	4/25/13		
Total Phenols, (G)	ND	0.01	420.4	4/26/13		
Silver (C)	ND	0.05	200.7	4/26/13		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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MAY 0 3 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave.

May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 2 of 7

St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 003, 4/25/13, 8:55 AM

WASTEWATER COMPOSITE, SP 003, 4/25/13, 8:55 AM - 3:48 PM

Units: mg/L except as noted

ANALYTE	003	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	360	5	5210 B	5/1/13
Chemical Oxygen Demand (C)	531	10	5220 D	4/26/13
Total Suspended Solids (C)	25	5	160.2	4/29/13
pH, S.U. (G)	8.23	****	150.1	4/25/13
Temperature, °C (G)	19.4	****	170.1	4/25/13
Oil & Grease (G)	144	5	1664	4/25/13
Total Phenols, (G)	0.439	0.25	420.4	4/29/13
Silver (C)	ND	0.05	200.7	4/26/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab





WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 3 of 7

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 005, 4/25/13, 7:57 AM

WASTEWATER COMPOSITE, SP 005, 4/25/13, 7:57 AM - 3:29 PM

Units: mg/L except as noted

Sints: mg/E except do noted						
ANALYTE	005	MQL	METHOD NUMBER	DATE OF ANALYSIS		
Biological Oxygen Demand (C)	127	5	5210 B	5/1/13		
Chemical Oxygen Demand (C)	223	10	5220 D	4/26/13		
Total Suspended Solids (C)	85	5	160.2	4/29/13		
pH, S.U. (G)	9.01	ma nos que squ	150.1	4/25/13		
Temperature, °C (G)	19.9	dili use oss oss	170.1	4/25/13		
Oil & Grease (G)	ND	5	1664	4/25/13		
Total Phenols, (G)	ND	0.01	420.4	4/29/13		
Silver (C)	ND	0.05	200.7	4/26/13		

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

RECEIVED

MAY 0 3 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave.

May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 4 of 7

St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 006, 4/25/13, 7:48 AM

WASTEWATER COMPOSITE, SP 006, 4/25/13, 7:48 AM - 4:00 PM

Units: mg/L except as noted

ANALYTE	006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	14	5	5210 B	5/1/13
Chemical Oxygen Demand (C)	46	10	5220 D .	4/26/13
Total Suspended Solids (C)	12	5 ,	160.2	4/29/13
pH, S.U. (G)	8.82		150.1	4/25/13
Temperature, °C (G)	15.9		170.1	4/25/13
Oil & Grease (G)	ND	5	1664	4/25/13
Total Phenols, (G)	ND	0.05	420.4	4/29/13
Silver (C)	ND	0.05	200.7	4/26/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 5 of 7

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 007, 4/25/13, 8:04 AM

WASTEWATER COMPOSITE, SP 007, 4/25/13, 8:04 AM - 3:33 PM

Units: mg/L except as noted

ANALYTE	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	68	5	5210 B	5/1/13
Chemical Oxygen Demand (C)	140	10	5220 D	4/26/13
Total Suspended Solids (C)	85	5	160.2	4/29/13
pH, S.U. (G)	9.12	****	150.1	4/25/13
Temperature, °C (G)	20.3		170.1	4/25/13
Oil & Grease (G)	ND	5	1664	4/25/13
Total Phenols, (G)	ND	0.01	420.4	4/29/13
Silver (C)	ND	0.05	200.7	4/26/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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DIVISION OF ENVIRONMENTAL COMPLIANCE



Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave.

May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 6 of 7

St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 008, 4/25/13, 8:20 AM

WASTEWATER COMPOSITE, SP 008, 4/25/13, 8:20 AM - 3:42 PM

Units: mg/L except as noted

ANALYTE	800	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	440	5	5210 B	5/1/13
Chemical Oxygen Demand (C)	529	10	5220 D	4/26/13
Total Suspended Solids (C)	458	- 5	160.2	4/29/13
pH, S.U. (G)	8.57	. No on My on	150.1	4/25/13
Temperature, °C (G)	18.7	000 000 NO. 000	170.1	4/25/13
Oil & Grease (G)	20	5	1664	4/25/13
Total Phenols, (G)	ND	0.10	420.4	4/29/13
Silver (C)	ND	0.05	200.7	4/26/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab



Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

May 2, 2013 Lab No. 13E-0774 Invoice No. 165741 P.O. No. 2912675W Page 7 of 7

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 009, 4/25/13, 8:25 AM

WASTEWATER COMPOSITE, SP 009, 4/25/13, 8:25AM - 3:45 PM

Units: mg/L except as noted

Times ingle oxoopt do noted					
ANALYTE	009	MQL	METHOD NUMBER	DATE OF ANALYSIS	
Biological Oxygen Demand (C)	123	5	5210 B	5/1/13	
Chemical Oxygen Demand (C)	289	10	5220 D	4/26/13	
Total Suspended Solids (C)	243	5	160.2	4/29/13	
pH, S.U. (G)	9.66	ino sor on on	150.1	4/25/13	
Temperature, °C (G)	23.5	w 70 m	170.1	4/25/13	
Oil & Grease (G)	15	5	1664	4/25/13	
Total Phenols, (G)	ND	0.05	420.4	4/29/13	
Silver (C)	· ND	0.05	200.7	4/26/13	

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

Steve Root, Manager **Environmental Testing**

SR/als

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MAY 0 3 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



AN OFFICIAL COPY OF TEST REPORT WILL HE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST, LOUIS TESTING LABORATORIES, INC. SEE REVERSE FOR CONDITIONS.

METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

MSD

1024-3530-00

PART I:	IDENTIFYING INFORMATION	1021 122		
Company Name	e: Washington University Medical School	ol		
Permit No:				
Premise Addres	ss: 660 South Euclid, St. Louis, MO 631	10		
Reporting Perio	od: 2013 (JAN-MAR)	(APR-JUN)	[] (JUL-SEP)	OCT-DEC)
PART II:	RECORD OF DISPOSAL OF RA	ADIOACTIVE MATER	RIALS TO THE SEWER	
	RADIONUCLIDE	ACTIVITY D	SCHARGED (millicuries)	
C-14				1.2567
H-3	_			16.1815
I-125			dirikkanskanskanskilda unsperaggerenne predigen furken vergaggeren vargaggeren vargaggeren betar betar bestekt	0.1656
P-32				0.1794
S-35				0.0130
	TOTAL ACTIVITY DISCHARGEI):		17.7963
Everyone mus	ials in the box under Item A. st complete the information under Ite TIFICATION OF COMPLIANCE WI	_	•	
gove	tify that to the best of my knowledge & berning disposal by release into sanitary sesouri Department of Health, respectively,	wage for material regulate	d by the Nuclear Regulatory	
B. RADI	OACTIVE MATERIALS DISCHAR	GE REPORT CERTIF	CATION	
system designed the person or pe submitted is to a submitting false	penalty of law that this document and all a d to assure that qualified personnel proper ersons who manage the system, or those p the best of my knowledge and belief, true e information, including the possibility of	rly gather and evaluate the ersons directly responsible, accurate, and complete.	information submitted. Base for gathering the information are signal are are signal.	ed on my inquiry of on, the information
	e of signing official: Karla Spafford			
Title: Radiation	/Safety Specialist	Telephone	: (314) 362-4968	
Signature:	ele Jeff	Date: 04/1	8/2013	

RECEIVED

RE: radrpt.doc 2/00

APR 2 2 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



From:

Isringhausen, Mary <isringhausenm@wusm.wustl.edu>

Sent:

Tuesday, April 09, 2013 2:00 PM

To:

Jason Gill

Subject:

Corrected letter

Attachments:

Letter04012013.pdf

I made a typo on the later I sent April 1. Here is the corrected version. Sorry for the inconvenience.

Livi Isringhausen **Environmental Compliance Manager** Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095



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Washington University Medical School 10243530-00



Environmental Health & Safety

April 1, 2013

Mr. Jason Gill
Environmental Engineering Associate
Metropolitan Sewer District
Division of Environmental Compliance
10 East Grand Ave.
St. Louis, MO 63147-2913

RE: Notice of Violation 3/20/2013: Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid, 63110

Dear Mr. Gill:

With regard to the Notice of Violation sent March 20, 2013, the following is WUSM's report of corrective actions and Reports of Tests showing compliance, to ensure compliance with MSD reporting requirements.

Corrective action for discharge above limitations for oil and grease:

Washington University School of Medicine has determined that the source of the oil and grease found in the sample on November 27, 2012 at 9:21 a.m. is the Barnes Hospital kitchen area in the Renard Building. This building is a shared building with both WUSM and Barnes Hospital activities. The flow from this building according to our map indicates that it would be included in WUSM Sample Point 003. BJH Plumbing shop did an upgrade/remodel project in the South Campus kitchen that temporarily relocated the pot-washing station to an area without a grease trap. The pot-washing operation has since moved back to its original location with functioning grease trap. A report of the sample verifying a return to compliance is enclosed

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely

Livi Isringhausen

Environmental Compliance Manager

Cc:

Linda Vishino EH&S

File

Environmental Health & Safety

April 1, 2013

Mr. Jason Gill Environmental Engineering Associate Metropolitan Sewer District Division of Environmental Compliance 10 East Grand Ave. St. Louis, MO 63147-2913

RE: Notice of Violation (1/08/2013) Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid, 63110

Dear Mr. Gill:

With regard to the Notice of Violation sent March 20, 2013, the following is WUSM's report of corrective actions and Reports of Tests showing compliance, to ensure compliance with MSD reporting requirements.

Corrective action for discharge above limitations for oil and grease:

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If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely.

Livi Isringhausen

Environmental Compliance Manager

Cc:

Linda Vishino EH&S

File

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APR 0 4 2013

DIVISION OF ENVIRONMENTAL COMPLIES

Washington University in St. Louis, Campus Box 1010, 350 North Skinker Boulevard, St. Louis, Missouri 63130 (314) 935-9264, Fax (314) 935-9266, esafety@msnotes.wustl.edu, www.ehs.wustl.edu

Washington University Medical School 10243530-00

Q

From:

Isringhausen, Mary <isringhausenm@wusm.wustl.edu>

Sent:

Monday, April 01, 2013 10:04 AM

To:

Scott Rehmer

Subject:

Phenol Results

Attachments:

Self monitoring Report (1st Quarter) 2013.xls

Scott- I added the <u>phenol</u> results to the report.

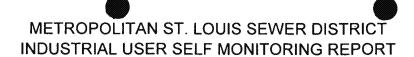
Livi Isringhausen Environmental Compliance Manager Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095

Washington
University in St. Louis

SCHOOL OF MEDICINE

-1024-3530-00

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PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

1/1/2013

Expiration:

12/31/2017

Premise Address: Monitoring Period: 660 South Euclid Ave., St. Louis, MO, 63110

<u>u ∧ve., St. Eouis, i</u> √ (Jan-Mar)

Effective:

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number Dates on Which Samples Were Collected		001 003		005				1		
										1
Times at Which Samples Were 0	Collected				000000000000000000000000000000000000000	-				
		Record Sample Types (G,C,M, or E) And Results Below								
PARAMETER	LIMIT	G=grab, C-composite, M=measured flow, E=estimated flow Units								
Flow	***	Ε	14,500	Е	64,500	E	340,000		Gal/Day	1
Biological Oxygen Demand	***	С		С		С			mg/L	1
Chemical Oxygen Demand	***	С		C		С			mg/L	1
Total Suspended Solids	***	С		С		С			mg/L	1
рН	5.5 - 11.5	G		G		G			pH .	
Oil & Grease	200	G		G		G			mg/L	1
Temperature	60	G		G		G			Celcius	1
Silver	0.5	С		С		С			mg/L	1
Total Phenol	. 7	G	<0.010	G	<0.050	G	0.092		mg/L	1
			3/21/2013 10:00AM	•	3/21/2013 10:30AM		3/21/2013 9:50AM			
					200000000000000000000000000000000000000					
			006		007		008		009	
Flow	***	E	950	E	23,500	 	131,850		131,850	GPD
Total Phenol	7	G	<0.025	G	0.014	G:	0.049	G:	<0.050	mg/L
			3/21/2013 9:45AM	ATTANTON	3/21/2013 10:05AM		3/21/2013 10:22AM		3/21/2013 10:15AM	9
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You must complete and sign the certification statements on the reverse side.

Environmental Health & Safety

April 1, 2013

Mr. Jason Gill **Environmental Engineering Associate** Metropolitan Sewer District Division of Environmental Compliance 10 East Grand Ave. St. Louis, MO 63147-2913

Notice of Violation 1/08/2013- Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. RE: Euclid, 63110

Dear Mr. Gill:

With regard to the Notice of Violation sent March 20, 2013, the following is WUSM's report of corrective actions and Reports of Tests showing compliance, to ensure compliance with MSD reporting requirements.

Corrective action for discharge above limitations for oil and grease:

Washington University School of Medicine has determined that the source of the oil and grease found in the sample on November 27, 2012 at 9:21 a.m. is the Barnes Hospital kitchen area in the Renard Building. This building is a shared building with both WUSM and Barnes Hospital activities. The flow from this building according to our map indicates that it would be included in WUSM Sample Point 003. BJH Plumbing shop did an upgrade/remodel project in the South Campus kitchen that temporarily relocated the pot-washing station to an area without a grease trap. The pot-washing operation has since moved back to its original location with functioning grease trap. A report of the sample verifying a return to compliance is enclosed

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely,

Livi Isringhausen

Environmental Compliance Manager

Cc:

Lindā Vishino EH&S

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APR 0 4 2013

DIVISION OF ENVIRONMENTAL COMPLIANT

Washington University in St. Louis, Campus Box 1010, 350 North Skinker Boulevard, St. Louis, Missouri 63130

(314) 935-9264, Fax (314) 935-9266, esafety@msnotes.wustl.edu, www.ehs.wustl.edu

Washington University Medical School 10243530-00



Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave.

St. Louis, MO 63110

March 27, 2013 Lab No. 13E-0517 Invoice No. 164020 P.O. No. 2912675W Page 1 of 1

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 03/21/13, 10:00 AM WASTEWATER GRAB, SP 003, 03/21/13, 10:30 AM WASTEWATER GRAB, SP 005, 03/21/13, 9:50 AM WASTEWATER GRAB, SP 006, 03/21/13, 9:45 AM WASTEWATER GRAB, SP 007, 03/21/13, 10:05 AM WASTEWATER GRAB, SP 008, 03/21/13, 10:22 AM WASTEWATER GRAB, SP 009, 03/21/13, 10:15 AM

Units: ma/L

W1110V, 11107						
ANALYTE	001	003	005	METHOD NUMBER	DATE OF ANALYSIS	
Total Phenol (G)	< 0.010	< 0.050	0.092	420.4	03/25/13	
Oil & Grease (G)		11	~~~~	1664	03/22/13	

ANALYTE	006	007	METHOD NUMBER	DATE OF ANALYSIS
Total Phenol (G)	< 0.025	0.014	420.4	03/25/13

ANALYTE	800	009	METHOD NUMBER	DATE OF ANALYSIS
Total Phenol (G)	0.049	< 0.050	420.4	03/25/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(G)- Grab

Steve Root, Manager **Environmental Testing**

SR/als

RECEIVED

APR 0 4 2013

пемоса

DIVISION OF ENVIRONMENTAL COMPLIANCE



Metropolitan St. Louis Sewer District

Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913 Phone: 314.768.6200 www.stlmsd.com

March 20, 2013

Livi Isringhausen
Environmental Compliance Manager
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 S. Euclid Avenue, Campus Box 8229
St. Louis, MO 63110

RE: NOTICE OF VIOLATION – WASTEWATER DISCHARGE PERMIT NO. 1024353000-1 For premise at: 660 S. Euclid Avenue, 63110

Dear Ms. Isringhausen:

We have reviewed the first quarter 2013 self-monitoring report, required under the permit referenced above, that you recently submitted to MSD. Thank you for your phone call, 2013. As you have already notified us on January 25, and as we have discussed by phone, we have identified the following violation:

VIOLATION OF DISCHARGE LIMITATIONS:

		SAMPLE	SAMPLE		DISCHARGE	LIMIT	VALUE
DATE	TIME	<u>POINT</u>	TYPE	<u>POLLUTANT</u>	LIMIT	TYPE	FOUND
01-28-13	0924	003	Grab	Oil & Grease (T)	200 mg / L	IN	270 mg / L

003 = Flow from S in MH, N of building 14, in driveway, 6' S of oxygen tanks
T = Total substance mg/L = milligrams per liter IN = Instantaneous

VIOLATION OF PERMIT TERMS/CONDITIONS:

- Permit Standard Condition I.A.10 requires you to resample and submit the results to MSD within 30 days of becoming aware of any discharge violation.
 - o Resampling results were not submitted within the expected period.
 - o Our experience shows that analytical results generally become available within one to four weeks of sampling.

REQUIRED ACTION/RESPONSE:

- 1. Submit a report of corrective actions to ensure compliance with MSD limitations for Oil & Grease. In the report:
 - a. Indicate which corrective actions are initiated and which are still to come
 - b. Include plans for additional sampling to verify a return to compliance
- 2. Submit a report of corrective actions, to ensure compliance with <u>MSD reporting requirements</u>. In the report:
 - a. Include actions to ensure that you will resample and submit the results to MSD within 30 days of becoming aware of any future self-monitoring discharge violation

- 3. Submit all additional sampling results to MSD. Sample collection must occur as follows:
 - a. Sample at the identified sampling point
 - b. Collect grab samples for Oil & Grease at sample point 003
 - c. Take samples at times representative of normal operations
- 4. Refer to the enclosure for additional information on:
 - a. Potential enforcement actions should noncompliance continue
 - b. Percentages applicable to Significant Noncompliance, when planning for additional sampling
- 5. Please submit your response no later than April 22, 2013.

Thank you for helping us to comply with state and federal regulations. If you have any questions, please contact me at 314.436.8756.

Sincerely,

METROPOLITAN ST. LOUIS SEWER DISTRICT

Scott M. Rehmer Assistant Engineer

Enclosure: SNC enclosure, Sample point map

cc: Doug Mendoza Jason Gill

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT



PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

1024353000-1

Effective:

1/1/2013

(Apr-June)

Expiration: 12/31/2017

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

(July-Sept)

(Oct-Dec)

Monitoring Period: Samples Collected By:

2013 (Jan-Mar) St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	er		001		003		005		
Dates on Which Samples Were Colle	cted	G: C:	1/28/2013 1/28/2013	G: C:	1/28/2013 1/28/2013	G: C:	1/28/2013 1/28/2013		needilineeninilinineedilinineenineeninee
Times at Which Samples Were Colle	cted	G: C:	9:17 AM 9:17am - 3:12pm	G: C:	9:24 a.m. 9:24am -3:25 pm	G: C:	9:05am 9:05 am - 3:04 pm		
PARAMETER	LIMIT	1			s (G,C,M, or E)				
Flow	***						┢	Units Gal/Day	
Biological Oxygen Demand	***	c	N/A	c	N/A	C	N/A	\vdash	mg/L
Chemical Oxygen Demand	***	c	121	c	304	C	211	 	mg/L
Total Suspended Solids	***	c	86	C	196	С	110	I	mg/L
pH	5.5 - 11.5	G	8.77	G	8.26	G	10.00		рН
Oil & Grease	200	Ġ	6	G	270	G	10		mg/L
Temperature	60	G	21.5	G	19	G	19.7		Celcius
Silver	0.5	С	ND	С	ND	С	ND		mg/L
PER L. Isringhausen.							-		
PHENOL + O.G resample									
will be collected next week.					ANI-manadamanananananananananananananananana				
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You must complete and sign the certification statements on the reverse side.

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DIVISION OF ENVIRONMENTAL COMPLIANCE

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

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12/31/2017

Premise Address: Monitoring Period:

660 South Euclid Ave., St. Louis, MO, 63110

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

(Jan-Mar) 2013 St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Num	ber		001		003		005		
Dates on Which Samples Were Col	lected	G: C:	3/7/2013	G: C:	3/7/2013	G: C:	3/7/2013		
Times at Which Samples Were Coll	ected	G: C:	8:16am - 2:18pm	G: C:	8:22am -2:22 pm	G: C:	8:08 am - 2:11 pm		
			Record Sample	Types	s (G,C,M, or E)	And R	esults Below		
PARAMETER	LIMIT	G	G=grab, C-composite, M=measured flow, E=estimated flow						Units
Flow	***	E	14,500	E	64,500	E	340,000		Gal/Day
Biological Oxygen Demand	***	C	246	С	64	С	5		mg/L
Chemical Oxygen Demand	***	С	381	С	162	С	10		mg/L
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1024353000-1

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660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2013

√ (Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	er		006		007		800		009	
Dates on Which Samples Were Colle	cted	G: C:	1/28/2013 1/28/2013	G: C:	1/28/2013 1/28/2013	G: C:	1/28/2013 1/28/2013	G: C:	1/28/2013 1/28/2013	
Times at Which Samples Were Collection	cted	G: C:	8:56 AM 8:56am-3:34 pm	G: C:	9:10 AM 9:10 am - 3:08 pm	G: C:	9:40 AM 9:40 am - 3:20 pm	G: C:	9:35 AM 9:35 am - 3:18 pm	
·		Reco	ord Sample Type	es (G,	C,M, or E) And I	Result	s Below			
PARAMETER	LIMIT		ab, C-composit	e, M≃	measured flow,	E=est	imated flow .			Units
Flow	***	E	950	E	23,500		131,850		131,850	Gal/Day
Biological Oxygen Demand	***	С	N/A	С	N/A		N/A		N/A	mg/L
Chemical Oxygen Demand	****	С	·141	С	124		326		216	mg/L
Total Suspended Solids	****	С	88	С	182		349		156	mg/L
рН	5.5 - 11.5	G	9.20	G	8.94		7.59		7.71	рН.
Oil & Grease	200	G.	13	G	6		18		9	mg/L
Temperature	60	G	14.5	G	22.3		17.7		16.2	Celcius
Silver	0.5	С	ND	С	ND		ND		0.07	mg/L
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√ (Jan-Mar)

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St. Louis Testing Laboratories

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ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Numbe	r		006		007		800		009	
Dates on Which Samples Were Colle	cted	G: C:	3/7/2013	G: C:	3/7/2013	G: C:	3/7/2013	G: C:	3/7/2013	
Times at Which Samples Were Collec	ted	G:		G:	***************************************	G: C:		G: C:	8:25 am - 2:25 pm	
		Record Sample Types (G,C,M, or E) And Results Below								
PARAMETER	LIMIT	_	ab, C-composite	~~~~		E=est	1	Τ	·	Units
Flow	***	E	950	E	23,500	ļ	131,850	ļ	131,850	Gal/Day
Biological Oxygen Demand	***	С	485	С	194	<u> </u>	284		181	mg/L
Chemical Oxygen Demand	***	C	1,015	С	324	ļ	540	<i>,.</i>	416	mg/L
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DIVISION OF ENVIRONMENTAL COMPLIANCE

#### INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

### PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

#### PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with
	a system designed to assure that gualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the
	person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted
	is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false
	information, including the possibility of fine and imprisonment for knowing violations.
	1. Tail
	Print or type name of signing official: hin 1811 Nahausen
	Print or type name of signing official: hin Isringhausen  Title: Unironning tal Comption c. Manager Telephone: 314-362-6735
	Title: Will office of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the transfer of the tran
	Signature Date: 3/18/13
	Signature Office Office

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MAR 20 2013

DIVISION OF
ENVIRONMENTAL COMPLIANCE



**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 February 5, 2013 Lab No. 13E-0168 Invoice No. 161601 P.O. No. 2912675W Page 1 of 7

St. Louis, MO 6311

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 001, 01/28/13, 9:17 AM** 

WASTEWATER COMPOSITE, SP 001, 01/28/13, 9:17 AM - 3:12 PM

Units: mg/L except as noted

ANALYTE	001	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	5	5210 B	2/4/13
Chemical Oxygen Demand (C)	121	10	5220 D	1/30/13
Total Suspended Solids (C)	86	5	160.2	1/30/13
pH, S.U. (G)	8.77	****	150.1	1/28/13
Temperature, °C (G)	21.5	*****	170.1	1/28/13
Oil & Grease (G)	. 6	5	1664	1/28/13
Silver (C)	ND	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.

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2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave.

February 5, 2013 Lab No. 13E-0168 Invoice No. 161601 P.O. No. 2912675W Page 2 of 7

St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 003, 01/28/13, 9:24 AM** 

WASTEWATER COMPOSITE, SP. 003, 01/28/13, 9:24 AM - 3:25 PM

Units: mg/L except as noted

ANALYTE	003	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	5	5210 B	2/4/13
Chemical Oxygen Demand (C)	304	10	5220 D	1/30/13
Total Suspended Solids (C)	. 196	5	160.2	1/30/13
pH, S.U. (G)	8.26		150.1	1/28/13
Temperature, °C (G)	19.0	still file did the	170.1	1/28/13
Oil & Grease (G)	270	5	1664	1/28/13
Silver (C)	ND	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.





**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

February 5, 2013 Lab No. 13E-0168 Invoice No. 161601 P.O. No. 2912675W Page 3 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 005, 01/28/13, 9:05 AM** 

WASTEWATER COMPOSITE, SP 005, 01/28/13, 9:05 AM - 3:04 PM

Units: mg/L except as noted

ANALYTE	005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	5.	5210 B	2/4/13
Chemical Oxygen Demand (C)	211	10	5220 D	1/30/13
Total Suspended Solids (C)	110	5	160.2	1/30/13
pH, S.U. (G)	10.0		150.1	1/28/13
Temperature, °C (G)	19.1	100 000 100 100	170.1	1/28/13
Oil & Grease (G)	10	5	1664	1/28/13
Silver (C)	ND	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.

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**DIVISION OF** ENVIRONMENTAL COMPLIANCE



AN OFFICIAL COPY OF TEST REPORT WILL HE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST, LOUIS TESTING LABORATORIES, INC.
SEE REVERSE FOR CONDITIONS.



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. February 5, 2013 Lab No. 13E-0168 Invoice No. 161601 P.O. No. 2912675W. Page 4 of 7

St. Louis, MO 63110

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID:** WASTEWATER GRAB, SP 006, 01/28/13, 8:56 AM

WASTEWATER COMPOSITE, SP 006, 01/28/13, 8:56 AM - 3:34 PM

Units: ma/L except as noted

ANALYTE	006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	5	5210 B	2/4/13
Chemical Oxygen Demand (C)	141	10	5220 D	1/30/13
Total Suspended Solids (C)	88	,5	160.2	1/30/13
pH, S.U. (G)	9.20		150.1	1/28/13
Temperature, °C (G)	14.5	600 GD 500 GD	170.1	1/28/13
Oil & Grease (G)	13	5	1664	1/28/13
Silver (C)	ND	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.





**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

February 5, 2013 Lab No. 13E-0168 Invoice No. 161601 P.O. No. 2912675W Page 5 of 7

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID: WASTEWATER GRAB, SP 007, 01/28/13, 9:10 AM** 

WASTEWATER COMPOSITE, SP 007, 01/28/13, 9:10 AM - 3:08 PM

Units: mg/L except as noted

ANALYTE	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	5	5210 B	2/4/13
Chemical Oxygen Demand (C)	124	10	5220 D	1/30/13
Total Suspended Solids (C)	182	5	160.2	1/30/13
pH, S.U. (G)	8.94		150.1	1/28/13
Temperature, °C (G)	22.3	w as w re	170.1	1/28/13
Oil & Grease (G)	6	5	1664	1/28/13
Silver (C)	ND	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.

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Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID: WASTEWATER GRAB, SP 008, 01/28/13, 9:40 AM** 

WASTEWATER COMPOSITE, SP 008, 01/28/13, 9:40 A.M. - 3:20 PM

Units: mg/L except as noted

ANALYTE	008	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	20	5210 B	2/4/13
Chemical Oxygen Demand (C)	326	10	5220 D	1/30/13
Total Suspended Solids (C)	349	5	160.2	1/30/13
pH, S.U. (G)	7.59	~~~	150.1	1/28/13
Temperature, °C (G)	17.7	00 to 00 to	170.1	1/28/13
Oil & Grease (G)	18	5	1664	1/28/13
Silver (C)	ND	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.





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**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 February 5, 2013 Lab No. 13E-0168 Invoice No. 161601 P.O. No. 2912675W Page 7 of 7

Attantion: Livi

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID:** WASTEWATER GRAB, SP 009, 01/28/13, 9:35 AM

WASTEWATER COMPOSITE, SP. 009, 01/28/13, 9:35 AM - 3:18 PM

Units: mg/L except as noted

ANALYTE	009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	N/A	5	5210 B	2/4/13
Chemical Oxygen Demand (C)	216	10	5220 D	1/30/13
Total Suspended Solids (C)	156	5	160.2	1/30/13
pH, S.U. (G)	7.71		150.1	1/28/13
Temperature, °C (G)	16.2		170.1	1/28/13
Oil & Grease (G)	9	5	1664	1/28/13
Silver (C)	0.07	0.05	200.7	1/31/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

N/A: BOD data not Available. Quality control limits were not met so analysis batch had to be rejected. Due to a 48-holding time the sample could not be re-tested. Water will be re-sampled and test for BOD at a later date.

Steve Root, Manager Environmental Testing

SR/st

RECEIVED

MAR 2 0 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE



AN OFFICIAL COPY OF TEST REPORT WILL HE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LYMORATORIES, INC.

SEE REVERSE FOR CONDITIONS.



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

March 15, 2013 Lab No. 13E-0425 Invoice No. 163484 P.O. No. 29112675W Page 1 of 1

Attention: Livi Isringhausen

REPORT OF TESTS '

**SAMPLE ID:** WASTEWATER COMPOSITE, SP 001, 03/07/13, 8:16 AM - 2:18 PM WASTEWATER COMPOSITE, SP 003, 03/07/13, 8:22 AM - 2:22 PM WASTEWATER COMPOSITE, SP 005, 03/07/13, 8:08 AM - 2:11 PM WASTEWATER COMPOSITE, SP 006, 03/07/13, 8:05 AM - 2:40 PM WASTEWATER COMPOSITE, SP 007, 03/07/13, 8:14 AM - 2:15 PM WASTEWATER COMPOSITE, SP 008, 03/07/13, 8:28 AM - 2:28 PM WASTEWATER COMPOSITE, SP 009, 03/07/13, 8:25 AM - 2:25 PM

Units: ma/L except as noted

		2	<u> </u>			
ANALYTE	001	003	005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	246	64	97	5	5210 B	03/13/13
Chemical Oxygen Demand (C)	381	162	226	10	5220 D	03/08/13

ANALYTE	006	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	485	194	5	5210 B	03/13/13
Chemical Oxygen Demand (C)	1015	324	10	5220 D	03/08/13

ANALYTE	008	009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	284	181	5	5210 B	03/13/13
Chemical Oxygen Demand (C)	540	416	10	5220 D	03/08/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

Steve Root, Manager Environmental EWEIVED.

SR/als

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## METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL FACILITY <u>INSPECTION</u> REPORT

MSD

	se Address: 660 S. Euclid Classes: SIU Non-Significan	t CIU C		Zip urcharge 🔲	ount #: 1024353 Code: 63110 Non-Toxic Process	Water/Wastes
Comp	Toxics-Bearing Waste ⊠ any Representative: Livi Isringhouse	No Process Dis	charge []	Multi-User (	Special F	landling/Billing 🗌
Title:	Environmental Compliance Mai			Phone	#: 314-362-67	35
Inspe						
•	s Present: <u>None</u>		······			
Inspe	ction Date: 2/27/13	Time: From <u>9:00 A</u>	<u>М</u> То <u>12</u>	2:45 PM	(Last Insp.	2/27/12)
	ALL ITEMS ARE TO BE COMPLETED BASED PROVIDED BY COMPANY DURING INSPECT				BASED ON INFORMA	ATION OBTAINED OR
	*** DATABASE ALSO UPDAT	ED WITH APPROPE	RIATE CHANG	GES - see attached	database reports *	**
1.	A. ARE THERE ADDITIONAL NON-S	TORMWATER ACC	OUNT NUMB	ERS?		Yes⊠ No□
_,	List them, note any changes:				3533-00. 10373777	'-00, 10481063-00.
	, , ,					s an active account
		but has no usage	ECIS. The	address of 4510	Parkview was con	firmed as being a
		parking lot.				and the second
	B. Did all acct no's have water usa	ge on PIMS?				Yes⊠ No🖃
	C. If no to B, explain:					
2.	PROCESSES & CLEANUP/WASHDOWN:		Cont/	Water/Liquids	Frequency	para ma
٠.	THOUSES & CEENTOTY WASHINGTH.	•	Batch?	Used?	of <u>DISCHARGE</u>	Sample pt.
	Research and teaching labs		Cont	Yes	Daily	001,003,005,0
			00	1.03	July	07,008,009
	Housing and care of research mice and	other animals	Cont	Yes	Daily	003,005,007,0
					,	08,009
	Kitchen services	4	Batch	Yes	Daily	005
	Hazardous materials clean-up		Batch	Yes	Daily	006
	,		(None)	N/A		
			(None)	N/A		
2	DDETDE ATACAIT ( )	describes.				
3.	PRETREATMENT (other than grease traps)	- describe:				Sample pt.
	pH neatralization					001, 003, 005,
		·.·	ů,	,		006, 007,-008,
	Silver recovery	- Waddiddidanaan				001, 003, 005,
	Silver recovery				•	001, 003, 003,
	· · · · · · · · · · · · · · · · · · ·					008,009
		- Charles and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the con	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		1 1
4.	DOES COMPANY HAVE ANY GREASE	TRAPS?				Yes⊠ No□
If yes:	A. List sample points: 005				•	, ,
	B. What is the frequency for clean		? Quarte	rly		
	C. Are any additives used in traps?					Yes ☐ No 🛛
	D. If yes to C, was company warned M				•	Yes No
	E. Was company informed that MSD	oerforms separate gr	ease trap insp	ections?		Yes⊠ No□
5.	HAS COMPANY CONSTRUCTED NEW	פו הכנ / אהחידוריים	VA/ITH CENTER	DC CINICE   ACT	FCTION:	
If yes:				KS SINCE LAST INSP		Yes No
,	B. If no or unknown, has inspector				Unknov	
	C. Comments:		p. oah:			Yes No
						· 5-1
Inspect	ion report	1				(11/12)
						1
	•					15,

6.	HAS	COMPANY BEGUN DISCHARGING ANY NEW POLLUTANTS SINCE THE LAST INSPECTION?	Yes□ No⊠
If yes:	Α.	List pollutants & process:	
	В.	Will MSD STP exceed existing NPDES discharge limit(s)?	Yes No
	C.	Will MSD STP's discharge exceed 0.1 mg/l for any new pollutant?	Yes No
	D	(MSD must notify MDNR if B or C is yes and discharge will continue.)  Comments:	
	U.	comments.	
7.	ARE	THERE ANY FEDERALLY REGULATED (40 CFR 405-471) OPERATIONS?	Yes□ No⊠
If yes:		List regulation & describe (including any discharge):	-
			•
_	В.	Is maximum daily categorical discharge ≤ 100 GPD? (includes batch discharges)	Yes No
If yes to	B:	C. Batch or Continuous? Volume verified how?	
		D. Does company ever discharge untreated, concentrated categorical wastewater?	Yes No
		E. Was company in SNC during any part of the previous <b>24</b> months?	Yes No
		F. Date of last NSCIU Certification Statement: or not currently NSCIU	NICOUN)
		(If no to B, yes to D or E, or Cert. Statement not submitted as required, company is not eligible to be	an NSCIU)
8.	HAS	COMPANY CERTIFIED TO THE ABSENCE OF SPECIFIC CATEGORICAL POLLUTANTS?	Yes No
If yes:		Certification date:	IC3 LIVO
·	В.	List absent pollutants:	
	C.	Were all these pollutants non-detect in all monitoring since certification was approved?	Yes No
		(If compared to intake water levels, explain details below)	
		o to C: D. Explain:	
	E.	Comments:	
0	DOE	CATECODICAL MACTEMATER COMPINE MUTU NON CATECODICAL MAN PRIOR TO CAMPINION	
9. If yes:		S CATEGORICAL WASTEWATER COMBINE WITH NON-CATEGORICAL WW PRIOR TO SAMPLING?	Yes□ No⊠
ii yes.		At which points?  Current applied factor:  Is it correct?	v
		Current applied factor: Is it correct?  If no, list correct factor/explain?	Yes No
	٠.	The first correct factory explain:	
10.	IS AI	NY WASTEWATER SUBJECT TO PRODUCTION 🔲 OR MASS 🔲 BASED STANDARDS?	Yes No
If yes:		At which points?	
	В.	Since calculation of the current limits, has the long term avg production rate or discharge volume	Yes No
		changed by 20% or more?	
	C.	If yes to B, explain:	
11	ADE	ANIV DADIOACTIVE MATERIALS HANDLEDS	K3
11. If yes:		ANY RADIOACTIVE MATERIALS HANDLED?  Describe operations & disposal: Radioactive materials for lab research are collected from all buildings at	Yes⊠ No□
ii yes.	Α.		
	•	Blg. 80 for disposal. Solids are hauled and some liquids are decayed discharged to the sewer system.	on site and
	В.		Yes⊠ No□
	C.	Most recent authorization date: 7/8/94	ies 🖂 IVO
	D.	Amount discharged in most recent complete calendar year: 111.61 MCI	
,			
12.	DOE	S COMPANY GENERATE WASTES/WASTEWATER BY GENETIC ENGINEERING RESEARCH?	Yes No
If yes:	Α.	Does company render wastes/wastewater innocuous?	Yes No
		If yes, describe how:	
	C.	TANDER OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE	Yes No
	υ.	Most recent authorization date:	
13.	DOF	S PROCESS or P&E WASHDOWN WATER USE APPEAR EXCESSIVE?	Vac Na Na
		OMPANY USING DILUTION TO MEET DISCHARGE LIMITATIONS?)	Yes∐ No⊠
	Α.	Explain how use was verified & any needed changes:	
		Wash U. Med School's primary acitivies involve many small laboratories that consume a lot a water when	n all of them
		are added together. Water is used in lab activities and for cleaning animal cages and other equipment.	There did not
		appear to be any excessive water usage during the walkthrough.	
		•	

14.			INSPECTION	, DOES CO	DMPANY APPEAR TO HAVE SOME WATER THAT IS	Yes⊠ No
ı	NOT DISCHARGED		5 1046			
If yes:		Evaporative loss				
		Factor Program"	_		· · · ·	Yes⊠ No□
	( <u>regardiess o</u>	f whether some v	water is not o	lischarge	d to sewer)	
15.	HAS COMPANY DE	EN CDANTED A V	ADIANCE EDO	AN DICCL	ARGE LIMITATIONS CONTAINED IN THE SEWER	v
13.	USE ORDINANCE?	LIN GRANTED A V	ANIANCE PRO	אועו טואנר	TARGE LIMITATIONS CONTAINED IN THE SEWER	Yes□ No⊠
If yes:	A. Pollutant(s) a	and variance limit	•			
,	B. Latest approx		•		,	
	C. Is the approv		====== e than 5 vear	s old?		Yes No
		new variance mu	•		te company)	162 140
,			•			
16.	HAVE ANY NUMER	ICAL LIMITATION	S BEEN APPL	IED TO C	OMPANY, IN ADDITION TO THOSE ALREADY	Yes□ No⊠
	CONTAINED IN THE					
If yes:	A. Pollutant(s) <u>a</u>					
	B. Date original	ly applied:	or as par	t of varia	nce above? 🔝	
4 -	1140 00145 4514 514		: :			
17.					S SINCE LAST INSPECTION	Yes⊠ No□
If yes:	OR WITHIN THE LA	21 15 MON 1H2 (1			<del>-</del> ·	
,	Pollutant	When	Sample	•	plem resolved?	
	O&G		Points	Y/N	Describe	
	Cag	11/27/12; 1/28/13	003	Yes	The violation occurred in a building that Wash	
		1/20/13			Barnes Hospital, and the exceedance may have	
	,				kitchen there. They are currently working with Bathe issue.	arnes to resolve
	pH	11/27/12	007	Yes	A dilute solution of disinfectant was being dis	charged during
			00,	1,03	time of sample. This department that was	responde was
					instructed to dispose of these chemicals through	ught the EURS
					dept.	ugiit the thas
	Bromomethane	11/27/12	,009	Yes	Tribromomethane was determined to be in one of	of the labs. This
					lab was instructed to dispose of all hazardous	
					EH&S program.	
	тто	7/26/12	001 -	N/A	MSD oversight (high DL's from industry's testing l	ab)
			009			
				N/A		
	B. Comments:					The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
					· ·	
18.					LIMITS SINCE THE LAST NA	∑ Yes  No
f yes:	INSPECTION OR WI	ITIN LAST 12 IVIC			<del>-</del> '	•
ı yes.	Pollutant	When	Sample Points	Y/N	lem resolved? Describe	•
	7 Ondtant	Wileir	Politics		Describe	
		-	<del>-</del>	N/A N/A		
		1				·
				N/A N/A		<del></del>
			-	N/A N/A		·
	B. Comments:			1 10/77		
		*				
L9.	HAVE THERE BEEN	ANY PROBLEM D	ISCHARGES S	INCE LAS	T INSPECTION?	Yes⊡ No⊠
f yes:	A. Upsets?		es of pretreat			163[-] 140[\frac{1}{2}]
	Spills?	Slug dis	charges? 🔲		Other?	
	B. Explain any m				•	
		. 1				
					\$	

Inspection report

(11/12)

If yes:	CHEM		TARY SEWERS OR STORM DE		5, OK STORE	:D WASTES, OK ST	OKED	Yes[	] NO⊠
If no:	<u> </u>	and others are stored on	d and processed in the EH&S containement pallets. All of re are spill located in strategi	the labs d	leep solvent	chemicals and of			
21.		ON OBSERVATIONS DUR	ING INSPECTION, ARE THERE	ANY ARE	AS WHERE (	COMPANY ACTIVI	TIES	Yes_	] No⊠
If yes:	B. \		scharges" brochure given to ere are any problem areas)	company	?			Yes⊠	] No□
22.			EN SLUG DISCHARGE CONTROL	(INCLUDES	SPILLS) PLAN	IS?			] No□
If yes:	Α.	Title (actual title, NC			10C01654		Last Upd		
			trol and Countermeasures Pl	an	****		10/29/12	2	
		2.					·		لييرسج
		Were Plans reviewed for ( (must be done)	completeness, especially rega	arding bat	ch discharg	es/slugs and Q.17	<b>&amp; 1</b> 8?	Yesl∑	No 🗌
	C. ,	Are updates needed to ex	isting Plans? ( <u>If yes, write co</u>	mpany &	require)			Yes	No⊠
			addition to those listed in Par			mpany & require)			No⊠
	E. 1	Explain why/why not for 0	C or D:					-	
23.			INTENANCE SHOP PARTS WA	ASHERS?				Yes	No⊠
If yes:		Parts washer solvent nam	***************************************						
		Priority pollutants (or "no	-						
		How is spent solvent dispe These solvents are not inclu	osed? ded in database's priority pollut	ants list, no	or monitored	for unless condition	ns show po	tential disc	charges)
24.	ARF A	NY ORGANICS OR SOLVEN	NTS USED (OTHER THAN IN PA	ΔRTS \λ/ΔS	HEBC/3	•		Vac	] No
If yes:		Solvent name/	VIS OSES (O MEN MAN IV)		433/469			Priority	7 140
,		components	Used for?	Proc	•	How disposed	7	Pollutar	nt?
	-	attached solvent list)	Laboratory reagents		No⊠	Hauled off site		Yes X	
	\			Yes		Tradica on site	,	Yes N	
		**************************************		Yes	No				10
				Yes	No				10
		1		Yes	No				Vo
	***************************************	***************************************		Yes	No				No I
	· · · · · · · · · · · · · · · · · · ·			1				103	<u> </u>
25.	DOES	COMPANY HAVE A <u>413/4</u>	<u>33/469-REGULATORY</u> "SOLVE	ENT MAN	AGEMENT P	LAN"?		Yes _	No⊠
			processes, whether or not so	olvents us	ed)				
If yes:		s it part of a Spill/Slug Co					Yes[1	. 2.	] No 🗌
		f no to A, date of last upd							
			/Slug Plan or SMP in the files					Yes _	] No[
			/433/469 solvents? (or verify					Yes	] No[
	(	If no to C or D, write com	pany and require submittal a	ind/or up	<u>date</u> )				•
26	ADCE	MEDICENICY NIGHTIEICATION	ALDROCEDI IDEC DOCTED TILA	T INICI I I D		r. orea		5	a ()
26.			N PROCEDURES POSTED THAT otification cards & told to pos				ما دعہ		No
	7. I	ocate them?	ouncation cards & told to pos	or Mileie (	aniergency i	esponse personn	ei can	Yes⊠	ווסרד]
			nerates process wastewater (	or stores	chemicals of	f concern)			
	,	post ir company ger	area process wastewater	0. 3.0.63	Jacanacais O	Concern			
			•						

Inspection report

(11/12)

27.	IS CO	OMPANY <u>REQUIRED</u> TO SELF-MONITOR ANY OF TH	EIR DISCHARGES?	Yes⊠ No□
If yes:	A.		ner document .	
•	В.	If other document, date & description:		
	C.	How frequently is sampling required? Quart	erly	
	D.	How frequently are reports required? Quart	<u>rerly</u>	
	E.	Have reports been on-time, complete & signed b	y proper person?	Yes⊠ No□
	F.	If no, explain:		,
28.	DOE	S COMPANY SELF-MONITOR ITS WASTEWATER DIS	SCHARGE?	Yes⊠ No□
If yes:	A.	,		Yes⊠ No□
	В.	,,,,,,,, .		Yes⊠ No□
		Are EPA-approved 40 CFR 136 wastewater test m		Yes⊠ No□
	D.	, , , , , , , , , , , , , , , , , , , ,		Yes  No⊠
	If y		procedure (meters, calibration stds, etc.).	
	_	Is measurement performed properly?		Yes No
	F.	If no to A,B,C, or E, explain needed changes:	•	
29.	DOF	S COMPANY CONTINUOUSLY MONITOR AT SAMPL	F POINT AND	Yes□ No⊠
		P A PERMANENT RECORD FOR: pH, TEMP, L		163 140 KZ
If yes:	A.	At which SPs?		
,	В.	Does company submit quarterly summaries?		Yes No
	C.	If no, explain:		. 4.4
30.	DOE	S MSD SPLIT SAMPLES WITH THE COMPANY?		Yes□ No⊠
If yes:	A.	Is company having the samples analyzed		Yes No
	B.	How does company insure proper preservation, holding	ng times & analytical methods?	
	C.	Has company submitted results of all split sample	e analyses since the last insp?	Yes No
	D.	Have results been submitted within 28 days of th		Yes No
	E.	If no to C, or D, explain:	·	
	F.	Does company still want to split samples?		Yes No
	G.	Comments:		
31.	IS CO	OMPANY REQUIRED TO REGULARLY SUBMIT ANY F	REPORTS OTHER THAN SELF-MONITORING REPORTS?	Yes⊠ No□
If yes:	A.	Is requirement contained in permit 🛛 or other	ner document 🔲.	
	В.	If other document, date & description:	<u></u>	
	C.		discharge	
	D.	How frequently are reports required? Quart		
	Ε.	Have reports been on-time, complete & signed b	y proper person?	Yes⊠ No□
	F.	If no, explain:	·	
32.	IS CO	OMPANY UNDER <u>ANY</u> ENVIRONMENTAL ENFORCEI	MENT ORDERS OR REQUIREMENTS TO SUBMIT	Yes□ No⊠
		MPLIANCE SCHEDULE REPORTS?	,	.65,,,02_3
If yes:	A.	Type and date:		
	В.	Have the reports & actions been on-time & comp	plete?	Yes No
	C.	If no, explain:		
33.		COMPANY: IS COMPANY IN COMPLIANCE W/APPLICABL		Yes⊠ No□
	[Som	ne MDNR-issued Title V air permits for specific processes		لسبينا - السبيا
16		/County-issued air permits are <u>not</u> NESHAP permits.]		
If no:	Α.	Describe:	. A be desert	
	В.	Was MDNR Air Pollution Control informed? (mus	at be done)	Yes No
				,

34.	DOES COMPANY RETAIN ALL WASTEWATER RECORDS FOR AT LEAST 5 YEARS?	Yes⊠ No□
If no:	A. How long does company retain records?	
_	B. Was company told to retain for at least 5 years, per ordinance?	Yes No
C.	Where are they kept? <u>File on site in</u>	. (1
35. If yes:	IS COMPANY CLASSIFIED AS A SIGNIFICANT INDUSTRIAL USER (SIU)?  A. Check & explain applicable criteria:	Yes No.
,	Process subject to categorical stds under 40 CFR 403.6.  Process discharge => 25,000 GPD  Process discharge => 5% of TP ADW hydraulic capacity  Process discharge => 5% of TP ADW organic capacity  TP ADW organic pollutant?  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:  TP ADW organic capacity:	', :
	Reasonable potential for adverse effect on operations Why?	
	Reasonable potential for violating PT std or req't Which ones & why?	•
36. If yes:	DO MSD CLASSIFICATIONS NEED TO BE REVISED?  A. Indicate correct classifications:	Yes No
	SIU Non-Significant CIU CIU Surcharge Non-Toxic Process Water Toxics-Bearing Waste No Process Discharge Multi-User Special Handling B. Explain changes:	
37.	IS COMPANY CLASSIFIED AS "Multi-User"?	Yes No⊠;
If yes:	A. Is company's discharge segregated from other tenants' discharge?	Yes No.
	B. If no to A, does the company own the bldg/receive the MSD bills?	Yes No
	C. If yes to B, was company informed it is responsible for total discharge, or else must provide	
	segregated sample points?	Yes No
	D. If no to B, are any Process/P&E Wash-type wastes discharged?	Yes No
	E. If yes to D, are the wastes completely innocuous?  (And explain why/why not:)	Yes No
	F. If yes to D, and no to E, company must accept responsibility or provide segregated SP.	
	Acceptance letter date: Or write company with requirement	
	G. If no to D or yes to E, are limits "alert only" on PIMS?	Yes No
	H. Comments:	
38.	IS COMPANY CLASSIFIED AS "Special Handling/Billing"?	Yes No⊠
If yes:	A. Why?	;
	B. Are any changes needed to reasons/details?	Yes No
	C. If yes, explain:	
	D. Were company records reviewed & verified for special handling/billing reports?	Yes No No No ;;

Inspection report

(11/12)

DJ(y/n)39. SAMPLE POINTS Sanitary, process, waste, P&E wash, lab waste, Fed.Reg. N/A No SP# 001 Components: CT blowdown, RO reject, storm water N/A SP# -003 Sanitary, process, waste, CT blowdown, lab No Fed.Reg. Components: waste, P&E wash, storm water SP# 005 N/A Fed.Reg. Components: Sanitary Process waste, boiler blowdown, CT No blowdown, kitchen waste, P&E wash, lab waste, RO reject, storm water SP# 006 N/A Fed.Reg. Components: Sanitary, P&E wash, storm water No N/A SP# 007 Fed.Reg. Components: Sanitary, P&E wash, lab waste, CT blowdown, No storm water SP# 800 Fed. Reg. N/A Sanitary, P&E wash, lab waste, CT blowdown, Components: storm water, process waste, RO reject SP# 009 Fed.Reg. N/A Components: Sanitary, P&E wash, lab waste, CT blowdown, No storm water, process waste, RO reject 40. ARE ANY SAMPLE POINTS TRAPPED VENTS? Yes⊠ No□ If yes: A. List SPs: SP006 B. Was co. informed that T-vents are preferred, and told why? Yes No Yes No⊠ 41. ARE DISCHARGES AT ANY SPS SMALL/IRREGULAR ENOUGH TO ALLOW GRAB SAMPLES? If yes: A. List SPs and reasons: 42. ARE THERE ANY UNSAMPLED DISCHARGES? (list each lateral separately) Yes□ No⊠ Dummy SP # Components: Dummy SP # Components: DO ANY SAMPLE POINTS (including Unsampled/Dummy SPs) RECEIVE STORMWATER? 43. Yes No If yes: A. List Sample Points: <u>001, 003, 005, 006, 007, 008, 009</u> WERE ALL SAMPLE POINTS (except Dummy SPs) OPENED & INSPECTED? No SPs Yes No □ 44. A. If any SPs cannot be located or opened, explain: B. If any SP descript's need to be changed, explain: Was ANY grease or other problem/debris observed in any SP? Yes No □ D. If yes to C, list SPs & describe: E. If yes to C, was company directed to take corrective actions? Yes No **REVIEW THE SAMPLE POINT MAP!** 45. Last map revision date: 7/9/12 Yes⊠ No□ A. Is the map correct and accurate in <u>all</u> its details? If no, what changes are needed: DO INSTRUCTIONS FOR "Contact Prior to Sampling" or FIELD VISIT "Special Instructions" NEED REVISION? 46 Yes No⊠ A. List needed changes: USE THIS SPACE FOR ANY OTHER COMMENTS/OBSERVATIONS PERTINENT TO YOUR INSPECTION OF THIS SITE. Both acrolein and acrylonitrile are "Known Present" at this facility. According to contact Livi Isringhausen, these two chemicals are used as lab reagents.

NCCW has been removed as a discharge component at sample points 001, 003, 005, 007, 008, and 009 and has been replaced by "Cooling Tower Blowdown" in PIMS. All of these sample points have cooling towers, and the Cooling Tower Blowdown was labeled NCCW.

#### TROPOLITAN ST. LOUIS SEWER DISTRI IAL DATA SHEET - FACILITY INFORM

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

Report No. PIMS012A

Data Date & Time:

2:30:49 pm

2:30:49 pm

03/07/2013

03/07/2013

WASHINGTON UNIVERSITY MEDICAL SCHOOL 1024353000

Premise Address

660 S. Euclid Ave. St. Louis MO. 63110

INDUSTRIAL USER CLASSIFICATIONS WUNNENBERG INFO. SIU CRITERIA siu 01/12/1999 Base Map 19G3 PR25 Process Disch => 25,000 GPD 06/09/1998 TOX Wun:St. Louis City & Co. Grid: J 20 Page 26 INSPECTION INFORMATION GENERAL INFORMATION PERMIT INFORMATION **IUQ INFORMATION** Office Mailing Address Issue Date: 01/01/2013 IUQ Recvd Date: 08/19/2002 **Next Due** 660 S. Euclid Ave., Campus Box 8229 Expire Date: 12/31/2017 Reviewer: Fabian Grabski Insp Rslt St. Louis, MO, 63110 **Extended Date:** IUQ Recvd Date: 06/28/2007 (02/27/2013 RIN Jason Gill Billing Address Writer Scott Rehmer Reviewer: James Goodall 660 S. Euclid Ave. IUO Recvd Date: 07/13/2012 St Louis, MO. 63110 Reviewer: Jason Gill CONTACTS BILL Livi Isringhausen Environmental Compliance Manager (314) 362-6735 Ext. FLDI Livi Isringhausen Environmental Compliance Manager OFF (314) 362-6735 Ext. Environmental Compliance Manager FAX Livi Isringhausen (314) 362-1095 Ext. FLD2 Linda Vishino **Environmental Compliance Officer** OFF (314) 935-7864 Ext. OFF1 Livi Isringhausen Environmental Compliance Manager FAX (314) 362-1095 Ext. Livi Isringhausen Environmental Compliance Manager OFF (314) 362-6735 Ext. OPERATIONAL INFORMATION OTHER AGENCIES INFORMATION... 01/03/1997 **Nuclear Regulatory Commission** 24-00167-11 Work Days: S M T w T F S 01/04/1997 MDNR - Hazardous Waste Program 001591 09:00AM 6,500 Υ Y Y ν Y Y Υ 01/05/1997 EPA - Hazardous Waste Program MOT300010857~ 600 06:00PM Y 09/28/2005 MSD - Billing Account Number 00246499 Total Emp: 7,100 Hrs: 16.0 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246504 NON-SEWERED WASTE 09/28/2005 MSD - Billing Account Number 00246496 On-Site Storage Y On-Site Disposal N Off-Site Disposal 09/28/2005 MSD - Billing Account Number 00246495 07/13/2012 Other Lab chemicals/reagents LBS 13,500 09/28/2005 MSD - Billing Account Number 00377308 07/13/2012 Solvents/Thinners 53,000 LBS 07/21/2011 MSD - Billing Account Number 00473620 07/13/2012 Radioactive Waste 1,500 LBS 07/13/2012 Paints or Paint Sludges 2,700 LBS 07/13/2012 Organic Compounds 27,000 LBS 07/13/2012 Kitchen/Food Service Grease 6,000 LBS 07/13/2012 Infectious Waste 370,200 LBS 07/13/2012 Equipment Oils and/or Grease 8,000 LBS  $\frac{\tilde{Q}}{M}$ MENT RAW MATERIALS SIC INFORMATION. EFF DATE MATERIAL_DESCRIPTION QUANTITY SIC DESCRIPTION Laboratory chemicals & reagents 05/07/2004 0279 Animal Specialties, NEC 8221 Colleges, Universities & Professional Schools 8733 Noncommercial Research Organizations PRODUCTS EFF DATE DESCRIPTION AVG_PROD MAX_PROD UNIT 05/07/2004 Medical school 05/07/2004 Research institution 05/07/2004 Research animal care & housing

### ROPOLITAN ST. LOUIS SEWER DISTRICATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL 1024353000

Premise Address

660 S. Euclid Ave. St. Louis MO. 63110

SEWER ACCOUNTS Sewer Accounts 1024353000 1024352900 1024353200 1024353300 1037377700 1048106300

WATER CONSUMPTION AN							
		1/2013 12:59	:59PMdays	s Cdays			
Acct. No.		Consumption				Disc	harge
1024352900	CCF's	Gallons				Gal/ Wday	Gal/ Cday
1024352900 11/03/2011 0	2/03/2012 1,33	0 1,330	A 93	3 93		93	
1024352900 02/04/2012 0	5/01/2012 1,23	0 2,560	88	88		181	
1024352900 05/02/2012 0	08/02/2012 1,81	0 4,370	93	93		274	
1024352900 08/03/2012 1	1/02/2012 1,61	0 5,980	92	92 -		366	
RF 1.00 Acct. To	otal 5,98	0 4,473,351	l	366	366	12,222	12,222
1024353000	CCF's	Gallons				Gal/ Wday	Gal/ Cday
1024353000 11/16/2011 0	2/01/2012 12,27	2 12,272	A 78	3 78		78	
1024353000 02/02/2012 0	5/08/2012 11,89	8 24,170	' 9 [,]	7 97		175	
1024353000 05/09/2012 0	8/06/2012 15,35	6 39,526	90	90		265	
1024353000 08/07/2012, 1	1/06/2012 15,06	4 54,590	92	92		357	
RF 0.90 Acct. To	otal 54,59	0 40,836,159	)	357	357	102,948	102,948
1024353200	CCF's	Gallons				Gal/ Wday	Gal/ Cday
1024353200 11/16/2011 0	2/23/2012 18,52	4 18,524	A 100	100		100	
1024353200 02/24/2012 0	5/14/2012 18,75	2 37,276	8	81		181	
1024353200 05/15/2012 0	8/10/2012 33,44	8 70,724	88	88		269	
1024353200 08/11/2012 1	1/27/2012 24,87	4 95,598	109	109		378	
RF 0.68 Acct. To		8 71,512,275	5	378	378	128,646	128,646
1024353300	CCF's	Gallons				Gal/ Wday	Gal/ Cday
1024353300 11/03/2011 0	2/03/2012 1,60	0 1,600	A 93	93		93	
1024353300 02/04/2012 0	5/01/2012 40	0 2,000	88	88		181	•
1024353300 05/02/2012 0	8/02/2012 20	0 2,200	93	93		274	
1024353300 08/03/2012 1	1/02/2012 20	0 2,400	92	92		366	•
RF 1.00 Acct. To	-,	0 1,795,325	5	366	366	4,905	4,905
1037377700	CCF's	Gallons				Gal/ Wday	Gal/ Cday
	2/08/2012 11,21	0 11,210	A 83	83		83	
1037377700 02/09/2012 0	5/14/2012 16,36	1 27,571	96	96		179	
1037377700 05/15/2012 0	8/10/2012 25,52	8 53,099	88	88		267	
	1/19/2012 19,87	,	10	101		368	4
RF 0.77 Acct. To	,.	, ,	7	368	368	114,220	114,220
1048106300	CCF's	Gallons				Gal/ Wday	Gal/ Cday
	2/03/2012 12,22			,	•	93	
	5/01/2012 12,22	•	-88	88		181	
	8/02/2012 21,96	8 46,419	93	93		274	
	1/02/2012 16,67	•	92			366	
RF 1.00 Acct. To		6 47,199,089		366	366	128,959	128,959
Facility Tot	al 294,638						

# METROPOLITAN ST. LOUIS SEWER DISTRY INDUSTIAL DATA SHEET - FACILITY INFORM WASHINGTON UNIVERSITY MEDICAL SCHOOL FNO. 1024353000 Output TNO. 1024353000

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

Report No. PIMS012A

Data Date & Time:

03/07/2013

03/07/2013

2:30:49 pm

2:30:49 pm

1024353000

660 S. Euclid Ave. St. Louis MO. 63110

CONNECTION and Sa	AMPLE POINT INFORMATION		***************************************	***************************************		***************************************		Stand Photos and a second	55555000000000000000000000000000000000
	Lateral Type	DSMF	d Tr	eatment	Area	Bissell	Point		
01 Sani	tary Or Combined	20G2	232C	Trunk	Sewer	37 - We	stern Mill C	reek	
Description Later	al from buildings located S of McKinley	Av & E	of Euclid Av						
Sewer Route S on	Taylor to Clayton Av, E to Boyle, N to D	Duncan th	en E to trunk	c to treatn	nent plant	:			
SAMPLE POINT NO.	001 Ordinance		NPDI	ES Outfa	II No.				
Description F1	ow from W in MH 30' N, 10' W of NE co	orner of b	ûilding 27 (i:	n alley)					
Discharge Component	s Process Description		Avg Flow	Unit	May	x Flow	Unit	RUD	Effective Date
Regeneration/Reject Wa	•		-	GPD	.vxa.	. 11011	· GPD	D	7/13/12
Plant & Equipment Was			•	GPD			GPD	D	7/13/12
Process Waste	Photographic & teaching labs			GPD			GPD	D	7/13/12
Sanitary	J .			GPD			GPD	D	7/13/12
Storm Water				GPD			GPD	D	7/13/12
Laboratory Waste	Research labs			GPD			GPD	D	7/13/12
Cooling Tower Blowdov	Vn		3,250	GPD			GPD	D	2/27/13
	Total Flow Avg =		14,839		Max =				
CONNECTION and S	MPLE POINT INFORMATION	00000000000000000000000000000000000000	***************************************	000000000000000000000000000000000000000	***************************************	00000000000000000000000000000000000000	090000000000000000000000000000000000000		Herestone and general design of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
	ateral Type	DSMF	I Tr	eatment	Area	Bissell I	Point		
02 Sanit	ary Or Combined	19G3	229C	Trunk	Sewer		stern Mill C	reek	
Description Later	al from buildings N&S of Scott Av & E	of Euclid							
	Taylor to Clayton Av, E to Boyle, N to D		en E to trunk	to treatn	nent plant				
	•				,				
SAMPLE POINT NO.				ES Outfa	II No.				
Description M	H 200' W of Taylor Ave. on S side of Sco	ott Ave. ii	1 street						Effective
Discharge Component	s Process Description		Avg Flow	Unit	Max	Flow	Unit	RUD	Date
Regeneration/Reject Wa	ter		32,761	GPD			GPD	D	7/13/12
Boiler Blowdown	·		39,666	GPD			GPD	D	7/13/12
Plant & Equipment Was		•	1,996	GPD			GPD	D	7/13/12
Process Waste	Photographic & teaching labs			GPD			GPD	D	7/13/12
Sanitary			75,445				GPD	D	7/13/12
Storm Water	Lab raggarah &			GPD			GPD	D	7/13/12
Laboratory Waste Kitchen Waste	Lab research & animal care		93,406				GPD	D	7/13/12
Cooling Tower Blowdow	·		9,176				GPD	D	7/13/12
Cooling Tower Blowdow	Total Flow Avg =	,	88,038 <b>341,328</b>		May -		GPD	D	2/27/13
***************************************		Materia de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constante de Constan	341,328	-00-0000000000000000000000000000000000	Max =	***************************************		***************************************	900000000000000000000000000000000000000
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1	ateral Type ary Or Combined	DSMH 19G3		eatment.		Lemay	nu de - D		
	al N from Building 14 W of Euclid Av to			Trunk S	sewer	/9 - Kiv	er des Peres	- ∪pper	
	ross S Kingshighway Blvd into Forest Pa	-		at plans					
		an w uull		-					
SAMPLE POINT NO.				S Outfal	l No.				
<b>Description</b> Flo	ow from S in MH N of building 14 in driv	ve, 6' S of	O2 tanks						Effective
Discharge Components	Process Description		Avg Flow	Unit	Max	Flow	Unit	RUD	Date
			0.100	CDD			GPD	D	7/13/12
Plant & Equipment Wash	ndown		2,179	GPD				D	1/13/12 1
Plant & Equipment Wash	ndown Photographic & teaching labs			GPD GPD			GPD	D	7/13/12
Plant & Equipment Wash Process Waste Sanitary				GPD					<b>1</b>
Plant & Equipment Wash Process Waste Sanitary Storm Water			546 31,974	GPD			GPD	D	7/13/12
Plant & Equipment Wash Process Waste Sanitary Storm Water Laboratory Waste	Photographic & teaching labs  Research labs & animal care		546 31,974	GPD GPD GPD			GPD GPD	D D	7/13/12 7/13/12
Plant & Equipment Wash Process Waste Sanitary Storm Water	Photographic & teaching labs  Research labs & animal care		546 31,974 0	GPD GPD GPD GPD			GPD GPD GPD	D D D	7/13/12 7/13/12 7/13/12

MSD 044483

### METROPOLITAN ST. LOUIS SEWER DISTRICT US ALL DATA SHEET - FACILITY INFORM

INDUSTRY NAME

WASHINGTON UNIVERSITY MEDICAL SCHOOL
T NO. 1024353000 Premise Address PRIMARY MSD ACCOUNT NO. 1024353000

660 S. Euclid Ave. St. Louis MO. 63110

Part of the Part		103		St. Louis	MO. 63110	
Total Flow		,103	Max =		***************************************	8880eriyoogoogoogoogoogoogoogoogoogoogoogoogoog
CONNECTION and SAMPLE POINT INFORM						
LATERAL NO. Lateral Type	DSMH	Treatmen	ıt Area	Bissell Point		
04 Sanitary Or Combined	19G3 259C	Trun	k Sewer	37 - Western Mill	Creek	•
Description 8" lateral E from Building 80 at	Taylor and Parkview to an un	named street				
Sewer Route N to Parkview to Duncan, E to	trunk to treatment plant					
SAMPLE POINT NO. 006 Ordinance	1	NPDES Outf	fall No.	•	,	
Description 6" trapped clay pipe 13' N, 9'	'E of SE corner of building 80	ı	•			******
Discharge Components Process Description	n Avg F	Flow Unit	May	Flow Unit	RUD	Effective Date
Plant & Equipment Washdown	• • • • • • • • • • • • • • • • • • • •	485 GPD	77867	GPD		
Sanitary					D	7/13/12
Storm Water		549 GPD		GPD	D	7/13/12
		0 GPD		GPD	D	7/13/12
Total Flow	000000000000000000000000000000000000000	,034	Max =			
CONNECTION and SAMPLE POINT INFORM	the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s					,
LATERAL NO. Lateral Type	DSMH	Treatmen	it Area	Bissell Point	,	
95 Sanitary Or Combined	20G2 235C	Trun	k Sewer	37 - Western Mill	Creek	
Description Multiple lines from Bldg 63 N t	o McKinlev					••
	-					
Sewer Route E on McKinley to Taylor, S to C	Clayton, E to Boyle, N to Dunc	an, then E to	trunk to tre	atment plant		
SAMPLE POINT NO. 007 Ordinance	•	MIDNES O	C. H. NI			
		NPDES Outf				•
Description Manhole in sidewalk E of Blo	dg 63; 111' N, 2' E of SE come	er of building				Effective
Discharge Components Process Description	1 Avg F	low Unit	Max	Flow Unit	RUD	Date
lant & Equipment Washdown		7,462 GPD		GPD	D	7/13/12
anitary		5,248 GPD		GPD	D	
torm Water	•	0 GPD		GPD GPD		7/13/12
aboratory Waste Lab research & animal car	ro 1/	0,327 GPD			D	7/13/12
Cooling Tower Blowdown		413 GPD		GPD	D	-7/13/12
Total Flow	Ava - 22		Man	GPD	D	2/27/13
		,450	Max =			
CONNECTION and SAMPLE POINT INFORM	IATION					
LATERAL NO. Lateral Type	DSMH	Treatmen	t Area	Lemay		
Sanitary Or Combined	19G3 492C	Trunk	k Sewer	82 - Euclid		
Description Line exiting N side of Bldg 4 (4.	25 S. Euclid) to main on Chile	iren's Pl				•
ewer Route Flow N from bldg to main on Cl	nildren's PI, E across Kingshig	hway to trunk	k sewer, S a	long RDP to STP		
SAMPLE POINT NO. 008 Ordinance	,	MDDEC O	F. 18 NT			
		NPDES Outf	all No.	•		
<b>Description</b> MH in plaza 27' W, 27' N of I	NE bidg corner					Effective
Discharge Components Process Description	Avg F	low Unit	Max	Flow Unit	RUD	Date
egeneration/Reject Water		3,618 GPD		GPD	D	
lant & Equipment Washdown		1,472 GPD				7/13/12
rocess Waste Photographic & teaching la		6,412 GPD		GPD	D	7/13/12
anitary				GPD	D	7/13/12
torm Water	49	0,681 GPD		GPD	D	7/13/12
		0 GPD		GPD	D	7/13/12
	_					
aboratory Waste Lab research & animal care		5,560 GPD		GPD	D	7/13/12
	31	,057 GPD	Max =	GPD GPD	D D	7/13/12 2/27/13

Repo	rt	No.	P	ΙΝ	1Š	0	12/	1
	_		_					

03/07/2013

2:30:49 pm

Data Date & Time:

03/07/2013

2:30:49 pm

### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORM 101

INDUSTRY NAME WA
PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL

1024353000

Premise Address

660 S. Euclid Ave. St. Louis MO. 63110

	anno anno anno anno anno anno anno anno		***************************************				10000000000000000000000000000000000000	011 00415 111		Whitein and the world will be a second and the world will be a second and the world will be a second as a second and the world will be a second as a second and the world will be a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second as a second	·
CONNECTION an	d SAM	PLE POINT INFORMATION				-				900000000000000000000000000000000000000	000000000000000000000000000000000000000
LATERAL NO.		eral Type	DSMF	ı Tı	eatmen	t Area	Lemay				
07 S	Sanitary	Or Combined	19G3	187C	Trun	k Sewer	82 - Eu	clid			
Description L	Line exi	ting E side of Bldg 4 (425 S. Euclid) t	to main o	n Euclid			•				
Sewer Route F	Flow E 1	from bldg to main on Euclid, E on Ch	ildren's P	l. across Kin	gshighv	vay, S to t	runk along	RDP to ST	P		
SAMPLE POINT	NO. (	009 Ordinance		NPDI	ES Outi	all No.					
Description	МН і	n E plaza 36' N, 27' E of S NE bldg									
Discharge Compo	nents	Process Description		Avg Flow	Unit	Ma	x Flow	Unit	RUD	Effective Date	المين الاستان المين الاستان
Regeneration/Reject	Water			33,618	GPD			GPD	D	7/13/12	
Plant & Equipment \	Washdo	own		4,472	GPD			GPD	D	7/13/12	
Process Waste	Ph	otographic & teaching labs		6,412	GPD			GPD	D	7/13/12	
Sanitary				49,681	GPD			GPD	D	7/13/12	
Storm Water				0	GPD			GPD	D	7/13/12	
Laboratory Waste	La	b research & animal care		16,560	GPD			GPD	D	7/13/12	•
Cooling Tower Blow	down	>		31,057	GPD			GPD	D	2/27/13	a** 8
	•	Total Flow Avg =		141,800		Max =					off () febase
PRETREATMENT	TYPES	5			************************	00000000000000000000000000000000000000		RRA compression compression contracts			fnAnnadacccccccccccccccccio
SP EFF DATE 1		DESCRIPTION									
001 09/02/1998 [		Metallic Replacement									Sanda s
001 07/13/2012 I		pH Adjustment/Neutralization								,	
003 09/02/1998 [		Metallic Replacement									
003 09/02/1998 [		pH Adjustment/Neutralization									:
005 07/17/2007 [		Metallic Replacement									
005 07/17/2007 I		pH Adjustment/Neutralization									,
005 06/16/1999 I 006 05/08/2001 I	DC28	Grease Trap									
006 03/08/2001 E		pH Adjustment/Neutralization									
007 07/17/2007 I		pH Adjustment/Neutralization									
000 07/13/2012 1	<i>J</i> C3/	pH Adjustment/Neutralization									

Report No. PIMS012A Data Date & Time:

03/07/2013 03/07/2013 2:30:49 pm

008 07/13/2012 DC32 Metallic Replacement

Metallic Replacement

pH Adjustment/Neutralization

07/13/2012 DC32

07/13/2012 DC37

009

2:30:49 pm

#### ROPOLITAN ST. LOUIS SEWER DISTRI AL DATA SHEET - FACILITY INFORM

INDUSTRY NAME

WASHINGTON UNIVERSITY MEDICAL SCHOOL PRIMARY MSD ACCOUNT NO. 1024353000

Premise Address

660 S. Euclid Ave. St. Louis MO. 63110

REIORIHY ROLLUITANIIS	Ct. t		-			
Pollutant Description	<u>Status</u>	Pollutant Description	Status	Pollutant Description	<u>Status</u>	
Cyanide (Total)	KP	Asbestos (Fibrous)	SP	Antimony (Total)	KP	
Silver (Total)	KP	Selenium (Total)	KP	Copper (Total)	KP	
Cadmium (Total)	KP	Beryllium (Total)	KP	Zinc (Total)	KP	
Thallium (Total)	KP	Nickel (Total)	KP	Mercury (Total)	KP	•
Lead (Total)	KP	Chromium (Total)	KP	Arsenic (Total)	KP	
Phenol	KP	Isophorone	KP	4-Nitrophenol	KP	
2,4-Dinitrophenol	SP	2-Chlorophenol	KP	Pyrene	KP	
Pentachlorophenol	KP	Nitrobenzene	KP	Hexachlorocyclopentadiene	KP	
Hexachlorobenzene	·SP	Gamma-BHC	KP	Benzo (A) Pyrene	KP	
Benzidine	KP	Aldrin	KP	Acrolein	KP	
Toluene	KP	Methylene Chloride	KP	Chlorobenzene	KP	
1,1,1-Trichloroethane	SP	Chloroform	· KP	Carbon Tetrachloride	KP	
Benzene	KP	1,2-Dichloroethane	KP	1,1,2-Trichloroethane	SP	
Acenaphthylene	KP	Acenaphthene	KP	2,4,6-Trichlorophenol	SP	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	SP	2,4-Dinitrotoluene	KP	1,2-Diphenylhydrazine	KP	
Bis (2-Chloroethoxy) Methane	SP	Anthracene	KP	2,6-Dinitrotoluene	SP	^
2,4-Dichlorophenol	SP	2-Nitrophenol	KP	Phenanthrene	KP	
Naphthalene	KP	Hexachloroethane	KP	Heptachlor Epoxide	KP	
Diethyl Phthalate	KP	Dieldrin	KP	Chlordane	SP	
Bis (2-Chloroisopropyl) Ether	SP	Bis (2-Chloroethyl) Ether	s SP	1,2-Dichlorobenzene	KP KP	
Trichloroethene	SP	Ethylbenzene	KP	Bromoform	KP	
Acrylonitrile	KP	1,4-Dichlorobenzene	. KP	1,1,2,2-Tetrachloroethane	KP	

Report No. PIMS012A

Data Date & Time:

03/07/2013 03/07/2013 2:30:49 pm 2:30:49 pm For Account Number Selected Located at

PIMS FACILITY CONTACTS
1024353000 WASHINGTON UNIVERSITY MEDICAL CHOO

660 S. Euclid Ave.

St. Louis

MO 63110

	Ad	dress	Type
--	----	-------	------

Co	ntact Type	C	Contact Name	Contact Title	Phone Type	Number	Ext.
1	Billing Address Billing Contact	Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
	Office Mailing Address			- · · · · · · · · · · · · · · · · · · ·	0	(314)302-0733	* . * ***
	Office Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	FAX	(314)362-1095	
	Office Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
; -	Premise Address						
	Field Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	FAX	(314)362-1095	
ļ,	Field Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	ns. de monse non
	Field Contact 1st Alt	Linda	Vishino	Environmental Compliance Officer	OFF	(314)935-7864	

Report No. PIMS061a Data Date & Time 3/7/2013 3/7/2013 2:21:20PM 2:21:20PM

of

Modification Date: Modification Time: 03/07/2013 · 2:21:20PM

# PIMS REART OF FIELD SAMPLING REQUIREMENS WASHINGTON UNIVERSITY MEDICAL SCHOOL

Account No Entered 1024353000

SPN		MISE ADDRESS	CITY	ST	ZIP		
	660	S. Euclid Ave.	St. Lo	uis MO	63110		*
001 Project Code: Pollutant Group	IM = 1 Poll Code	IPD - Company - MSD Pollutant Description	Frequency	Sample Type		End Date	er (vii)
•	1208000	Biochemical Oxygen Demand (5 Day)		Comp-Time 04 Hrs		06/30/2013	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs		06/30/2013	, .
	T237000	рН	Once/year	Grab		06/30/2013	
	T247000	Temperature	Once/year	Grab		06/30/2013	
* *	T256000	Total Suspended Solids	Once/year				•
	T257000	Total Phenols	-	Comp-Time 04 Hrs		06/30/2013	
	T393000		Once/year	Grab		06/30/2013	the step and a
Phenolic Organics - Acids	T991000	Silver (Total)	Once/year	Comp-Time 04 Hrs		06/30/2013	
· · · · · · · · · · · · · · · · · · ·		Phenolic Organics - Acids	.Once/year	Grab		06/30/2013	
Semi-Volatile Organics - Bas		Semi-Volatile Organics - Base/Neutral	-	Comp-Time 04 Hrs		06/30/2013	
Semi-Volatile Organics - Aci		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	•	06/30/2013	
Volatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2	-ch@nocthedr	Grab		06/30/2013	•
003 Project Code: Pollutant Group	IM = 1 Poll Code	PD - Company - MSD Pollutant Description	F	Colorado T		End Data	1.45
ronatant Group	***************************************	•	Frequency	Sample Type		End Date	
•	T208000	Biochemical Oxygen Demand (5 Day)		Comp-Time 04 Hrs		06/30/2013	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs		06/30/2013	, * e
	T237000	pН	Once/year	Grab		06/30/2013	ر. الإجماعة .
	T247000	Temperature	Once/year	Grab		06/30/2013	
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs		06/30/2013	with Linear
	T257000	Total Phenols	Once/year	Grab		06/30/2013	n iz fir autopies.
•	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs		06/30/2013	
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	· Once/year	Grab			
Semi-Volatile Organics - Bas		Semi-Volatile Organics - Base/Neutral				06/30/2013	
Semi-Volatile Organics - Acid		Semi-Volatile Organics - Acids	· ·	Comp-Time 04 Hrs		06/30/2013	
Volatile Organics	T996000	Volatile Organics - Acids  Volatile Organics - Acids  Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs Grab		06/30/2013 06/30/2013	er merijene er
005 Project Code: Pollutant Group	IM = I Poll Code	PD - Company - MSD Pollutant Description	Frequency	Sample Type	, ř .	End Date	
•	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs		06/30/2013	
	T213000 .	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs		06/30/2013	
:	T234000	Oil and Grease (Total)	Once/year	Grab		06/30/2013	
	T237000	pH	Once/year	Grab			
	T247000	Temperature	Once/year	· Grab		06/30/2013	(Securit
	T256000	Total Suspended Solids	Once/year			06/30/2013	4* .
	T257000	Total Phenols		Comp-Time 04 Hrs		06/30/2013	1 to 1 to
	T393000		Once/year	Grab		06/30/2013	and the same
Phonolio Organica Anido		Silver (Total)	Once/year	Comp-Time 04 Hrs		06/30/2013	16 77 13 15 15 15 15 15 15 15 15 15 15 15 15 15
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/year	Grab	•	06/30/2013	9 227
Semi-Volatile Organics - Base		Semi-Volatile Organics - Base/Neutral		Comp-Time 04 Hrs		06/30/2013	
Semi-Volatile Organics - Acid		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs		06/30/2013	•
/olatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2-	ch@moethgar	Grab	•	06/30/2013	
Project Code: Pollutant Group	IM = I Poll Code	PD - Company - MSD Pollutant Description	¥2	G		P 16.	5 A. 2 A.
rondant Group	1208000	•	Frequency	Sample Type		End Date	
	T213000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs		06/30/2013	
		Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs		06/30/2013	
	T234000	Oil and Grease (Total)	Once/year	Grab		06/30/2013	
4.0	T237000	pH	Once/year	Grab		06/30/2013	***************************************
	T247000	Temperature	Once/year	Grab		06/30/2013	
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs		06/30/2013	
•	T257000	Total Phenols	Once/year	Grab		06/30/2013	
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs		06/30/2013	विश्वपत्तिः । विश्वपत्तिः ।
Jacobs 100 100 100 100 100 100 100 100 100 10							
Report No. PIMS067A 3	/7/2013	2:24:31PM				***************************************	***************************************

# PIMS RT OF FIELD SAMPLING REQUIREMES WASHINGTON UNIVERSITY MEDICAL SCHOOL

Account No Entered 1024353000

SPN	000000000000000000000000000000000000000	MISE ADDRESS	CITY	ST	ZIP	
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/year	Grab	06/30/2013	
Semi-Volatile Organics - E	Base/1994000	Semi-Volatile Organics - Base/Neutra	ls Once/year	Comp-Time 04 Hrs	06/30/2013	Antenna i i
Semi-Volatile Organics - A	Acid@1995000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2013	
Volatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2	-ch@moe/hgar	Grab	06/30/2013	t m e trapa.
				•		·
007 Project Cod	o. IM-	IDD Company MCD				
Pollutant Group	Poll Code	IPD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date	
	1208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2013	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2013	
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2013	
	T237000	pH	Once/year	Grab	06/30/2013	
	T247000	Temperature	Once/year	Grab	06/30/2013	
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs		
	T257000	Total Phenols	•	•	06/30/2013	w.2m20110.00
	T393000		Once/year	Grab	06/30/2013	
Phenolic Organics - Acids	T991000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	
-		Phenolic Organics - Acids	Once/year	Grab	06/30/2013	mathew wish
Semi-Volatile Organics - B		Semi-Volatile Organics - Base/Neutral	•	Comp-Time 04 Hrs	06/30/2013	
Semi-Volatile Organics - A		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2013	uman a al
Volatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2-	-chilmocthyar	Grab	06/30/2013	
•	•					978 m. s
008 Project Code	e: IM= 1	IPD - Company - MSD	•		· ·	eria estratura
Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date	•
·	1208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2013	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2013	
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2013	
•	T237000	рН	Once/year	Grab	06/30/2013	weadfictoris
	T247000	Temperature	Once/year	Grab		
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2013	
	T257000	Total Phenois	Once/year	Grab	06/30/2013	
	T335000	Chromium (Total)	Once/year		06/30/2013	
*	T339000	Copper (Total)	•	Comp-Time 04 Hrs	06/30/2013	
	T368000	Lead (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	ertimen (Desta
•	T377000		Once/year	Comp-Time 04 Hrs	06/30/2013	
	T393000	Nickel (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	
•	T403000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	Section 1 htt
Dhamalia Ossanias - Asida		Zinc (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/year	Grab	06/30/2013	2° 321 2 323
Semi-Volatile Organics - B		Semi-Volatile Organics - Base/Neutral	=	Comp-Time 04 Hrs	06/30/2013	
Semi-Volatile Organics - A		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2013	ઇઝારિયા -
Volatile Organics	Т996000	Volatile Orgs-not incl Acro/Acryl & 2-	ch@noethgar	Grab	06/30/2013	
				,		i ti di mini peterritari ti di seleci Perendi
009 Project Code	e: IM = I	PD - Company - MSD				AND AND AND AND AND AND AND AND AND AND
Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date	** **
	1208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	. 06/30/2013	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2013	Self Cottonichelor
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2013	
	T237000	pH	Once/year	Grab .	06/30/2013	
	T247000	Temperature	Once/year	Grab	06/30/2013	*** ** **
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs		
	T257000	Total Phenols	Once/year	Grab	06/30/2013	5160 °- 10
	T335000	Chromium (Total)	Once/year		06/30/2013	1200 - 010
	T339000	Copper (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	
•	T368000	Lead (Total)	•	Comp-Time 04 Hrs	06/30/2013	realist de Comp
	T377000	Nickel (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	adda feeg
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	
	T403000	•	Once/year	Comp-Time 04 Hrs	06/30/2013	mer a
		Zinc (Total)	Once/year	Comp-Time 04 Hrs	06/30/2013	ma sa
Report No. PIMS067A	3/7/2013	2:24:31PM			Goddforonium gap zastatious usus gastation kan kan na na na na na na na na na na na na n	
Data Date & Time	3/7/2013	2:24:31PM	2 of 3			"Payment to

Phenolic Organics - Ac		MISE ADDRESS	CITY	ST	ZIP		
Semi-Volatile Organics Semi-Volatile Organics Volatile Organics	- Base/ <b>N9940409</b>	Phenolic Organics - Acids Semi-Volatile Organics - Base/No Semi-Volatile Organics - Acids Volatile Orgs-not incl Acro/Acryl	Once/year	Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Grab		06/30/2013 06/30/2013 06/30/2013 06/30/2013	Constitutibles diseases with a constitutibles
							· 沙學家 ;
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Report No. PIMS067A Data Date & Time

3/7/2013 3/7/2013

2:24:31PM 2:24:31PM

3 of 3

MSD

Jason Gill

From:

Isringhausen, Mary <isringhausenm@wusm.wustl.edu> Monday, Eebruary 11, 2013 9:52 AM

Sent:

To:

Jason Gill; Scott Rehmer

Cc:

Vishino, Linda

Subject:

Corrective Action

Attachments:

Corrective action oil bromo 02062013.pdf

Good Morning-

Please see attached letter of correct action. A hard copy has been mailed this morning.

Livi Isringhausen **Environmental Compliance Manager** Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095



The materials in this message are private and may contain Protected Healthcare Information or other information of a sensitive nature. If you are not the intended recipient, be advised that any unauthorized use, disclosure, copying or the taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this email in error, please immediately notify the sender via telephone or return mail.

## Washington University in St. Louis

#### **Environmental Health & Safety**

February 6, 2013

Mr. Jason Gill Environmental Engineering Associate Metropolitan Sewer District Division of Environmental Compliance 10 East Grand Ave. St. Louis, MO 63147-2913

RE: Notice of Violation 1/08/2013- Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid. 63110

Dear Mr. Gill:

With regard to the Notice of Violation sent January 8, 2013, the following is WUSM's report of corrective actions and Reports of Tests showing compliance, to ensure compliance with MSD reporting requirements.

Corrective action for discharge above limitations for oil and grease:

Washington University School of Medicine has determined that the source of the oil and grease found in the sample on November 27, 2012 at 9:21 a.m. is the Barnes Hospital kitchen area in the Renard Building. This building is a shared building with both WUSM and Barnes Hospital activities. The flow from this building according to our map indicates that it would be included in WUSM Sample Point 003. We are working with Barnes Hospital EH&S to resolve the violation. A report of the sample verifying a return to compliance is enclosed

Corrective action for discharge above limitations for bromomethane:

Washington University School of Medicine has determined that a specific lab in the BJCIH Building has been using tribromomethane. It is WUSM's belief this is the source of the reported .002mg/l of bromomethane at the time of sampling on November 27, 2012 at 11:31 a.m. EH&S has personally spoken to occupants of this lab and instructed them to dispose of all chemical waste through the Environmental, Health and Safety chemical waste program. A report of the sample verifying a return to compliance is enclosed

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely

Livi Isringhausen

**Environmental Compliance Manager** 

Cc:

Linda Vishino EH&S

File

Washington University in St. Louis, Campus Box 8229 660 South Euclid Avenue, St. Louis, Missouri 63110-1093, (314) 362-6816, Fax: (314) 362-1995 esafety@msnotes.wustl.edu, www.ehs.wustl.edu



**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave St. Louis, MO 63110 December 14, 2012 Lab No. 12E-2568 Invoice No.159548 P.O. No. 2912675W Page 1 of 1

Attention: Livi Isringhausen

REPORT OF TESTS

**SAMPLE ID:** WASTEWATER GRAB, SP003, 12/11/12, 1:35 P.M.

ANALYTE	RESULTS	MQL	TEST METHOD	DATE OF ANALYSIS
Oil & Grease, mg/L	5	5	1664	12/13/12

(12/28/12) - JAC

MQL: Minimum Quantitative Limit

**SAMPLE ID:** WASTEWATER GRAB, SP007, 12/13/12, 10:15 A.M.

ANALYTE	RESULTS	TEST METHOD	DATE OF ANALYSIS	
pH, S.U.	8.31	150.1	12/13/12	
Temperature, °C	20.9	170.1	12/13/12	

/ Already in PIMS (12/28/12) - JAG

SR/krm

Steve Root, Manger Environmental Testing



WASHINGTON UNIVERSITY Campus Box 8229

660 South Euclid Ave St. Louis, MO 63110

Attention: Livi Isringhausen

January 25, 2013 Lab No. 13E-0110 Invoice No. 161136 P.O. No. 4314 Page 1 of 1

#### **REPORT OF TESTS**

SAMPLE ID: WASTEWATER GRAB, SP009, 01/18/13, 9:00 A.M.

Units: mg/L

ANALYTE	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Bromomethane	ND	0.001	600/624 mod.	01/18/13

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

Steve Root, Manager Environmental Testing

SR/bb



# METROPOLITAN SEWER DISTRICT

MSD &

#### INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I:	IDENTIFYING INFORMATION		
Company Name:	Washington University Medical School	1024353000	
Permit No:		·	
Premise Address:	660 South Euclid, St. Louis, MO 63110		
Reporting Period:	: <b>2012</b>	(APR-JUN) [ (JUL-SEP)	X (OCT-DEC)
PART II:	RECORD OF DISPOSAL OF RADIO	ACTIVE MATERIALS TO THE SEWER	
	RADIONUCLIDE	ACTIVITY DISCHARGED (millicuries)	
H-3			24.9300
I-125			0.0899
P-32			0.2139
S-35			0.0060
U-238			0.0010
	TOTAL ACTIVITY DISCHARGED:		25.2407
A. CERTIF	fy that to the best of my knowledge & belief, ning disposal by release into sanitary sewage	A & B and sign this report.  STATE AND FEDERAL REGULATIONS  all requirements of 10 CFR Part 20.2003 and 19 CS for material regulated by the Nuclear Regulatory Co been met for the period covered by this report.	SR Part 20-10.090 ommission and the
B. RADIO	ACTIVE MATERIALS DISCHARGE F	REPORT CERTIFICATION	
system designed to the person or pers submitted is to the submitting false in	o assure that qualified personnel properly gaing sons who manage the system, or those person	nents were prepared under my direct supervision in ther and evaluate the information submitted. Based s directly responsible for gathering the information, trate, and complete. I am aware that there are signif- and imprisonment for knowing violations.	on my inquiry of the information
Title: Radiation Sa	-	Talanhama (214) 262 4060	gand his Million in the State of the Company of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State
THE NAUISHON SE	arcty Specialist	Telephone: (314) 362-4968	
Signature:	W///	Date: 01/17/2013	

RECEIVED

RE: radrpt.doc 2/00

JAN 2 2 2013



#### Metropolitan St. Louis Sewer District

Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913 Phone: 314.768.6200 www.stlmsd.com

January 8, 2013

Livi Isringhausen
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 S. Euclid
St. Louis, MO 63110

RE: NOTICE OF VIOLATION - SEWER USE ORDINANCE NO. 12559

For premise at: 660 S. Euclid

Dear Ms. Isringhausen:

As I had mentioned during my voicemail I left you on January 8, 2013, MSD personnel recently collected and analyzed samples of wastewater discharged to the MSD system from the premise above. Unfortunately, we identified the following violation:

#### **VIOLATION OF DISCHARGE LIMITATIONS:**

*		SAMPLE	SAMPLE	•	DISCHARGE	LIMIT	VALUE
DATE	TIME	<u>POINT</u>	TYPE	<b>POLLUTANT</b>	LIMIT	TYPE	FOUND
11-27-12	0921	003	Grab	Oil & Grease (T)	200 mg/L	IN	256 mg/L

SP003: Flow from S in MH N of building 14 in drive, 6' S of O2 tanks

(T) = Total substance

mg/L = milligrams per liter

IN = Instantaneous

See the enclosure for an explanation of the asterisks appearing in the Value Found column.

#### POTENTIAL VIOLATION OF DISCHARGE PROHIBITIONS:

Certain volatile chemical compounds were found at elevated levels as indicated below:

DATE 11-27-12	TIME 1131	POINT 009	SAMPLE <u>TYPE</u> Grab	POLLUTANT Bromomethane	GAS/VAPOR TOXIC SCREENING LEVEL 0.002 mg/L	VALUE <u>FOUND</u> 0.0042 mg/L
1		000	0.00	Diomoniemane	0.002 mg/L	0.0042 mg/L

SP009: MH in E plaza 36' N, 27' E of S NE bldg.

mg/L = milligrams per liter

Any other toxic organic chemicals which are or may be present in your discharge returned analytical values less than the minimum reporting level.

Wastewater discharges <u>are prohibited</u> under Ordinance 12559, Article V, Section One.A.8 if they cause or contribute to emissions of toxic gases, vapors, or fumes into the sewer atmosphere at levels in excess of applicable exposure levels. The presence of volatile chemical compounds at concentrations above the screening levels can result in the generation of toxic gases or vapors in the sewer atmosphere. Such conditions pose a serious threat to the health and safety of MSD personnel and to other users of the sewer system. If several compounds are present at elevated levels, the potential for the generation of toxic gases or vapors increases due to possible additive and/or synergistic effects.

#### REQUIRED ACTION/RESPONSE:

The above Oil & Grease violation at Sample Point 003 is the same sampling event as the one I referenced during our 12/6/12 phone conversation. If you recall, we knew of the violation, but our laboratory was back-logged and the official results were not available until now. We have received your sampling analysis for Oil & Grease at Sample Point 003 on 12/28/12. We will still need a written response of your corrective actions for the violation, as outlined below.

- Submit a report of corrective actions, to ensure compliance with MSD limitations for Oil & Grease (T) and Bromomethane.
   In the report:
  - a. Indicate which corrective actions are initiated and which are still to come
  - b. Include plans for additional sampling to verify a return to compliance
- 2. Submit all additional sampling results to MSD. Sample collection must occur as follows:
  - a. Sample at the identified sampling points
  - b. Collect Grab samples for Bromomethane
  - c. For "potential violations of discharge limitations" only, you need only analyze for the individual toxic organic chemical compounds that were above the gas/vapor toxic screening level.
  - d. Take samples at times representative of normal operations
- 3. Refer to the enclosure for additional information on:
  - a. Potential enforcement actions should noncompliance continue
  - b. Percentages applicable to Significant Noncompliance, when planning for additional sampling
- 4. Submit your response no later than February 11, 2013.

Sincerely,

METROPOLITAN ST. LOUIS SEWER DISTRICT

Jason/Gill

**Environmental Engineering Associate** 

Enclosures: SNC enclosure, SP map

cc: Doug Mendoza Chris Bulmahn

File: WASHINGTON UNIVERSITY MEDICAL SCHOOL [1024353000]

#### Jason Gill

WoshU

MSD

JAC OS

From:

Isringhausen, Mary <isringhausenm@wusm.wustl.edu>

Sent:

Thursday, January 03, 2013 8:44 AM

To:

Jason Gill

Subject: Attachments: Corrective Action NOV 11/28/2012 pH Corrective Action NOV 11282012.pdf

Jason- Let me know if you need anything else.

Livi Isringhausen Environmental Compliance Manager Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095



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Washington University Melical school (0243530-06

VIA

## Washington University in St. Louis

#### Environmental Health & Safety

January 3, 2013

Mr. Jason Gill
Environmental Engineering Associate
Metropolitan Sewer District
Division of Environmental Compliance
10 East Grand Ave.
St. Louis, MO 63147-2913

RE: Notice of Violation- Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid, 63110

Dear Mr. Gill:

With regard to the Notice of Violation sent November 28, 2012, the following is WUSM's report of corrective actions, to ensure compliance with MSD reporting requirements.

#### Corrective action:

Washington University School of Medicine has determined that at the time of sampling on November 27, 2012 at 10:55 a.m., a dilute solution of a disinfectant mixture was being discharged. The individual department that was responsible has been instructed to dispose of disinfectant mixtures as a chemical waste through the Environmental, Health and Safety chemical waste program. A report of the sample verifying a return to compliance is enclosed.

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely

Livi Isringhausen

Environmental Compliance Manager

Cc:

Linda Vishino EH&S

File

Washington University in St. Louis, Campus Box 8229 660 South Euclid Avenue, St. Louis, Missouri 63110-1093, (314) 362-6816, Fax: (314) 362-1995 esafety@msnotes.wustl.edu, www.ehs.wustl.edu

Washington University Medical School 10243530-00



#### Environmental Health & Safety

January 3, 2013

Mr. Jason Gill
Environmental Engineering Associate
Metropolitan Sewer District
Division of Environmental Compliance
10 East Grand Ave.
St. Louis, MO 63147-2913

RE: Notice of Violation- Wastewater Discharge Permit NO. 1024353000 for premise at: 660 S. Euclid, 63110

Dear Mr. Gill:

With regard to the Notice of Violation sent November 28, 2012, the following is WUSM's report of corrective actions, to ensure compliance with MSD reporting requirements.

#### Corrective action:

Washington University School of Medicine has determined that at the time of sampling on November 27, 2012 at 10:55 a.m., a dilute solution of a disinfectant mixture was being discharged. The individual department that was responsible has been instructed to dispose of disinfectant mixtures as a chemical waste through the Environmental, Health and Safety chemical waste program. A report of the sample verifying a return to compliance is enclosed.

If you should need any additional information please feel free to contact me at 314-362-6735.

Sincerely

Livi Isringhausen

**Environmental Compliance Manager** 

Cc:

Linda Vishino EH&S

File

Washington University in St. Louis, Campus Box 8229

RECEIVED

660 South Euclid Avenue, St. Louis, Missouri 63110-1093, (314) 362-6816, Fax: (314) 362-1995 esafety@msnotes.wustl.edu, www.ehs.wustl.edu

JAN 0 4 2013

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University Medical School 10243530-00

€



WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave St. Louis, MO 63110

. 25

December 14, 2012 Lab No. 12E-2568 Invoice No.159548 P.O. No. 2912675W Page 1 of 1

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP003, 12/11/12, 1:35 P.M.** 

ANALYTE	RESULTS	MQL	TEST METHOD	DATE OF ANALYSIS	
Oil & Grease, mg/L	5	5	1664	12/13/12	

MQL: Minimum Quantitative Limit

SAMPLE ID: WASTEWATER GRAB, SP007, 12/13/12, 10:15 A.M.

ANALYTE	RESULTS	TEST METHOD	DATE OF ANALYSIS
pH, S.U.	8.31	150.1	12/13/12
Temperature, °C	20.9	170.1	12/13/12

SR/km

Steve Root, Manger Environmental Testing

RECEIVED



JAN 0 4 2013

Jason Gill

Isringhausen, Mary <isringhausenm@wusm.wustl.edu> From: Sent:

To:

Friday, December 28, 2012 12:19 PM Jason Gill

Subject: Attachments: FW: Results Scan 001.pdf

Just confirming that you received this and that I do not need to send you anything else.

Thanks.

Livi Isringhausen

**Environmental Compliance Manager** Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095 http://ehs.wustl.edu/

----Original Message----

From: Livi Isringhausen [mailto:isringhausenm@wusm.wustl.edu]

Sent: Friday, December 28, 2012 2:31 AM To: jgill@stlmsd.com; Isringhausen, Mary

**Subject: Results** 

Please open the attached document. It was scanned and sent to you using a Xerox Phaser MFP. For more information on Xerox products and solutions, please visit http://www.xerox.com.

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Washington University Medical School 10243530-00

38°C Clark Avenue • St. Louis, N.C. 651 03-2574 • (314) 531-8080 • FAX (314) 531-8085

Weenship Retailurgion Mechanical No restructive, Environmental Testino, Analyses and fileto Service.

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave St. Louis, MO 63110 December 14, 2012 Lab No. 12E-2568 Invoice No.159548 P.O. No. 2912675W Page 1 of 1

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID: WASTEWATER GRAB, SP003, 12/11/12, 1:35 P.M.** 

ANALYTE	RESULTS	MQL	TEST METHOD	DATE OF ANALYSIS	
Oil & Grease, mg/L	5	5	1664	12/13/12	

MQL: Minimum Quantitative Limit

**SAMPLE ID:** WASTEWATER GRAB, SP007, 12/13/12, 10:15 A.M.

ANALYTE	RESULTS	TEST METHOD	DATE OF ANALYSIS
pH, S.U.	8.31	150.1	12/13/12
Temperature, °C	20.9	170.1	12/13/12

SR/km

Steve Root, Manger Environmental Testing

#### Jason Gill

From:

Jason Gill

Sent:

Thursday, December 06, 2012 9:36 AM

То:

Christopher J. Bulmahn

Subject:

WASHINGTON UNIVERSITY MEDICAL SCHOOL [1024353000] - phone call reminder to

avoid SNO

Chris,

Today I spoke with contact Livi Isringhausen to remind them samples they need to take to demonstrate compliance. They need to take one GOOD sample for pH @ SP007, and they need one GOOD sample for Oil & Grease @ SP003.

I gave Livi a heads-up about the O&G sample @ 003 because the results have not been processed in PIMS and the NOV has not yet been sent. O&G was not listed in PIMS monitoring at SP003. The MSD samplers saw visible oil in the sample point, and they proceeded to take a sample for O&G. The result came back high from Lablynx – 256 mg/L. O&G will be added to monitoring at SP003.

Jason



#### Metropolitan St. Louis Sewer District

Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913 Phone: 314.768.6200 www.stlmsd.com

November 28, 2012

Livi Isringhausen
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 S. Euclid Ave.
St. Louis, MO 63110

RE: NOTICE OF VIOLATION – WASTEWATER DISCHARGE PERMIT NO. 1024353000 For premise at: 660 S. Euclid Ave.

Dear Ms. Isringhausen:

As our field personnel notified you on November 27, 2012, MSD personnel recently collected and analyzed samples of wastewater discharged to the MSD system from the premise above. Unfortunately, we identified the following violation:

#### **VIOLATION OF DISCHARGE LIMITATIONS:**

		SAMPLE	SAMPLE		DISCHARGE	LIMIT	VALUE
DATE	TIME	POINT	TYPE	<b>POLLUTANT</b>	<u>LIMIT</u>	TYPE	<u>FOUND</u>
11-27-12	1310	007	Grab	pН	5.5-11.5 SU	IN	4.91 SU

007 = Manhole in sidewalk E of Bldg 63; 111' N, 2' E of SE corner of building

SU = Standard pH Units

IN = Instantaneous

Our field personnel also provided you with a Field Notice of Discharge Violation, copy enclosed, for the above pH violations. Please be aware that laboratory analyses of the samples collected may potentially result in other discharge violations. Should there be any, we will notify you of them upon completion of the analyses.

#### REQUIRED ACTION/RESPONSE:

- 1. Submit a report of corrective actions, to ensure compliance with MSD limitations for pH. In the report:
  - a. Indicate which corrective actions are initiated and which are still to come
  - b. Include plans for additional sampling to verify a return to compliance
- 2. Submit all additional sampling results to MSD. Sample collection must occur as follows:
  - a. Sample at the identified sampling points
  - b. Collect grab samples for pH
  - c. Take samples at times representative of normal operations
  - d. pH and temperature readings must be taken immediately when the sample is collected, and not after transporting to a laboratory for analysis
  - e. pH readings must be measured using a pH probe, rather than with pH paper strips
- 3. Refer to the enclosure for additional information on:
  - a. Potential enforcement actions should noncompliance continue
  - b. Percentages applicable to Significant Noncompliance, when planning for additional sampling

4. Submit your response no later than <u>December 31, 2012</u>.

Thank you for helping us to comply with state and federal regulations. If you have any questions, please contact me at 314.436.8709.

Sincerely,

METROPOLITAN ST. LOUIS SEWER DISTRICT

Jason Gill

**Environmental Engineering Associate** 

Enclosures: SNC enclosure, SP map, Field Notice

cc: Doug Mendoza Chris Bulmahn

File: WASHINGTON UNIVERSITY MEDICAL SCHOOL [1024353000]

MSD

### · FIELD NOTICE OF DISCHARGE VIOLATION

METROPOLITAN ST. LOUIS SEWER DISTRICT DIVISION OF ENVIRONMENTAL COMPLIANCE 10 EAST GRAND AVENUE ST. LOUIS, MO 63147

COMPAN	NY NAME	HASHING	on Univ	PRETREATMENT ACCOUNT NO. 1024353000
MSD Ind today. T collected	ustrial Wa his sampli will be an	ste Techni ing involve alyzed by	cians cond d up to fo the Divisio	ducted sampling of the wastewater discharge from your facility our separate visits to each sampling point (SP). The samples on of Environmental Compliance laboratory and the results will be your facility.
during the outside t	<b>ne sampli</b> i he limits a	n <mark>g visits.</mark> allowed un	These cor der MSD	to your attention at the earliest possible time, were noted anditions may include pH and/or temperature readings which fel Sewer Use Ordinance 12559 or other conditions which may charge from your facility.
SP NO.	TIME	рН	TEMP	OTHER CONDITIONS
007	10:55	4,91	21.5	
		4,	***	
SP NO.	TIME	pН	TEMP	OTHER CONDITIONS
2000				
.4				
				24
		<u> </u>		
Celsius (	140 degre	es Fahreni	neit) at any	.5 at all times and the temperature may not exceed 60 degrees time.  ce of the above violations as well as notice of any violations o
				d during analysis by the MSD laboratory.
above vehicle have to [	iolations a Doug Mend	and to tak doza at 314	e immedi 1-436-8717 entative (F	Printed Name) List JS(1/1/19 hoursen
•		•	(Si	gnature) ///
by MSD	Ind. Waste	Technicia	n WESLE	Y WILLIAMS Date 11/27/12 Time 13:10
NOV-Field 1	1/08	Distributio	n: White Copy	y → Industry: Yellow Copy → Pretreatment Unit: Pink Copy → Field Unit

## METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

MSD 5-26

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION 1024-3530-00

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Effective:

2/1/2009

Expiration:

12/31/2012

Premise Address: Monitoring Period:

660 South Euclid Ave., St. Louis, MO, 63110

2012

(Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

**ANALYTICAL RESULTS OF SELF MONITORING** 

MSD Sample Point Reference Nur	mber		001		003		005		
Dates on Which Samples Were Co	ollected	G: C:	10/11/2012 10/11/2012	G: C:	10/11/2012 10/11/2012	G: C:	10/11/2012 10/11/2012	<u> </u>	unnnen
Times at Which Samples Were Collected		G: C:	8:28 AM 8:28am - 3:57pm	G: C:	8:36 a.m. 8:36am -3:57 pm	G: C:	8:18am 8:18 am - 3:37 pm	<u> </u>	
			Record Sample	Туре	s (G,C,M, or E)	And F	Results Below	Ι.	MIDEO-C-N-SP-MANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAMANAGAM
PARAMETER	LIMIT	. (	3=grab, C-comp	osite,	M=measured fl	ow, E	estimated flow		Units
Flow	***	E	14,500	E	64,500	E	340,000		Gal/Day
Biological Oxygen Demand	****	<u>C</u>	63	С	11	С	64		mg/L
Chemical Oxygen Demand	***	С	126	С	177	С	95		mg/L
Total Suspended Solids	***	С	85	С	90	С	50		mg/L
рН	5.5 - 11.5	G	8.26	G	8.71	G	9.58		рН
Oil & Grease	200	G	96	G	13	G	ND		mg/L
Temperature	60	G	22.2	G	19.2	G	23.7	1	Celcius
Silver	0.5	С	ND	С	ND	С	ND		mg/L
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You must complete and sign the certification statements on the reverse side.

COT 2 5 2012

## METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I: IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2012

(Jan-Mar)

(Apr-June)

(July-Sept)

√ (Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

**PART II:** 

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	r į	<u> </u>	006		007		008		009	
Dates on Which Samples Were Collect	cted	G: C:	10/11/2012 10/11/2012	G: C:	10/11/2012 10/11/2012	G: C:	10/11/2012 10/11/2012	G: C:	10/11/2012 10/11/2012	
Times at Which Samples Were Collect	ted							G: C:	8:50 AM 8:50 am - 3:53 pm	
`		Reco	ord Sample Type	es (G,	C,M, or E) And	Result	s Below			
PARAMETER	LIMIT	G=gr	ab, C-composite	e, M=r	neasured flow,	E=est	imated flow		.,	Units
Flow	***	E	950	E	23,500		131,850		131,850	Gal/Day
Biological Oxygen Demand	****	C	ND	С	86	<u> </u>	515		225	mg/L
Chemical Oxygen Demand	***	С	ND	С	147	<u> </u>	617		286	mg/L
Total Suspended Solids	***	С	. 17	С	83		583		244	mg/L
рН	5.5 - 11.5	G	9.14	G	8.66		8.03		8.18	рН
Oil & Grease	200	G	ND	G	18		22		. 8	mg/L
Temperature	60	G	18.9	G	22.2		24		24.2	Celcius
Silver	0.5	С	ND	С	ND		ND		ND	mg/L
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You must complete and sign the certification statements on the reverse side.

#### INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

#### PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

#### PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.  Print or type name of signing official:
	Title: Environmental Compliance Manager Telephone: 314-362 735  Signature: Date: 10/25/12

2

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OCT 2 5 2012

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 1 of 7

**WASHINGTON UNIVERSITY** Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 001, 10/11/12, 8:28 AM WASTEWATER COMPOSITE, SP 001, 10/11/12, 8:28 AM – 3:57 PM

Units: mg/L except as noted

ANALYTE	001	MQL	METHOD NUMBER	DATE OF ANALYSIS	
Biological Oxygen Demand (C)	63	5	5210 B	10/17/12	
Chemical Oxygen Demand (C)	126	10	5220 D	10/12/12	
Total Suspended Solids (C)	85	5	160.2	10/12/12	
pH, S.U. (G)	8.26		150.1	· 10/11/12	
Temperature, °C (G)	22.2		170.1	10/11/12	
Oil & Grease (G)	96	5	1664	10/12/12	
Silver (C)	ND	0.05	200.7	10/16/12	

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

RECEIVED

OCT 2 5 2012

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 2 of 7

### **WASHINGTON UNIVERSITY** 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 003, 10/11/12, 8:36 AM WASTEWATER COMPOSITE, SP. 003, 10/11/12, 8:36 AM – 3:57 PM

Units: mg/L except as noted

ANALYTE	003	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	111	5	5210 B	10/17/12
Chemical Oxygen Demand (C)	177	10	5220 D	10/12/12
Total Suspended Solids (C)	90	5	160.2	10/12/12
pH, S.U. (G)	8.71	, 100 100 min sine	150.1	10/11/12
Temperature, °C (G)	. 19.2		170.1	10/11/12
Oil & Grease (G)	. 13	5	1664	10/12/12
Silver (C)	ND	0.05	200.7	10/16/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

**WASHINGTON UNIVERSITY** 

660 South Euclid Ave. St. Louis, MO 63110

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 3 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 005, 10/11/12, 8:18 AM WASTEWATER COMPOSITE, SP 005, 10/11/12, 8:18 AM – 3:37 PM

Units: mg/L except as noted

ANALYTE	005	MQL	METHOD NUMBER	DATE OF ANALYSIS	
Biological Oxygen Demand (C)	64	5	5210 B	10/17/12	
Chemical Oxygen Demand (C)	95	10	5220 D	10/12/12	
Total Suspended Solids (C)	50	5	160.2	10/12/12	
pH, S.U. (G)	9.58	die van ster een	150.1	12/11/12	
Temperature, °C (G)	23.7		170.1	10/11/12	
Oil & Grease (G)	ND	5	1664	10/12/12	
Silver (C)	ND	0.05	200.7	12/16/12	

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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OCT 2 5 2012

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 4 of 7

#### **WASHINGTON UNIVERSITY** 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 006, 10/11/12, 8:10 AM WASTEWATER COMPOSITE, SP 006, 10/11/12, 8:10 AM – 3:32 PM

Units: mg/L except as noted

ANALYTE	006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	ND	5	5210 B	10/17/12
Chemical Oxygen Demand (C)	ND	10	5220 D	10/12/12
Total Suspended Solids (C)	17	5	160.2	10/12/12
pH, S.U. (G)	9.14		150.1	10/11/12
Temperature, °C (G)	18.9		170.1	10/11/12
Oil & Grease (G)	ND	5	1664	, 10/12/12
Silver (C)	ND	0.05	200.7	10/16/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

**WASHINGTON UNIVERSITY** 

660 South Euclid Ave. St. Louis, MO 63110

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 5 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 007, 10/11/12, 8:24 AM WASTEWATER COMPOSITE, SP 007, 10/11/12, 8:24 AM – 3:40 PM

Units: mg/L except as noted

ANALYTE	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	86	5	5210 B	10/17/12
Chemical Oxygen Demand (C)	147	10	5220 D	10/12/12
Total Suspended Solids (C)	83	5	160.2	10/12/12
pH, S.U. (G)	8.66	80 six six no	150.1	10/11/12
Temperature, °C (G)	22.2		170.1	10/11/12
Oil & Grease (G)	18	5	1664	10/12/12
Silver (C)	ND	0.05	200.7	10/16/12

MQL: Minimum Quantitative Limit · ND: None Detected Above MQL

(C)-Composite (G)-Grab

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OCT 2 5 2012

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 6 of 7

### **WASHINGTON UNIVERSITY** 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 008, 10/11/12, 8:45 AM WASTEWATER COMPOSITE, SP 008, 10/11/12, 8:45 A.M. – 3:51 PM

Units: mg/L except as noted

ANALYTE	008	MQL	METHOD · NUMBER	DATE OF ANALYSIS	
Biological Oxygen Demand (C)	515	20	5210 B	10/17/12	
Chemical Oxygen Demand (C)	617	10	5220 D	10/12/12	
Total Suspended Solids (C)	583	5	160.2	10/12/12	
pH, S.U. (G)	8.03	xx dar 40 fb.	150.1	10/11/12	
Temperature, °C (G)	24.0		170.1	10/11/12	
Oil & Grease (G)	22	5	1664	10/12/12	
Silver (C)	ND	0.05	200.7	10/16/12	

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

**WASHINGTON UNIVERSITY** 660 South Euclid Ave.

St. Louis, MO 63110

October 18, 2012 Lab No. 12E-2179 Invoice No. 157140 Page 7 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 009, 10/11/12, 8:50 AM WASTEWATER COMPOSITE, SP. 009, 10/11/12, 8:50 AM – 3:53 PM

Units: mg/L except as noted

ANALYTE	009	MQL	METHOD NUMBER	DATE OF ANALYSIS	
Biological Oxygen Demand (C)	225	5	5210 B	10/17/12	
Chemical Oxygen Demand (C)	286	10	5220 D	10/12/12	
Total Suspended Solids (C)	244	5	160.2	10/12/12	
pH, S.U. (G)	8.18		150.1	10/11/12	
Temperature, °C (G)	24.2		170.1	10/11/12	
Oil & Grease (G)	8	5	1664	10/12/12	
Silver (C)	ND	0.05	200.7	10/16/12	

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

Steve Root, Manager Environmental Testing

· SR/bb

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OCT 2 5 2012

# METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

MSDR

PART I:	IDENTIFY	YING INFORMATION	4					
Company Name:	Washington	University Medical Scho	ool			10243	53000	
Permit No:								
remise Address	660 South E	Euclid, St. Louis, MO 63	110					
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itle: Radiation/S	afety Special	ist		Telepho	one: (314) 362	-4968		makasas assas akakaki Mashi Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Marki Ma
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## METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

1024-3530-00

Company Name:

Weshington University School of Medicine

Permit No:

51122162-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

**Monitoring Period:** 

12 (Jan-Mar)

(Apr-June) √ (July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

ASD Sample Point Reference Number			001		003		005	
Dates on Which Samples Were Collected	·		7725/2012 7725/2012	G: 7/26/2012 C: 7/26/2012			7/26/2012 7/26/2012	
Times at Which Samples Were Collected		G:	10:12 a.m.	Œ	10:22 a.m.	G:	10:00 8:0 em - 8:47 pm	
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		3	becord Sample					Units
PARAMETER	LOCT	Same of the last	greb, C-compo		,,	٣	450,000	Gal/Day
Flow	6000	E	28,250	٤	<u>55,500</u>	툽	44	mg/L
Biological Oxygen Demand (C)	6000	C	44	Ç	<u>84</u>	峝	103	
Chemical Oxygen Demand (C)		c	88	阜	98	+	39	mg/L
Total Suspended Solids (C)	***	C	67	Ē	490	Ë		mg/L pH
pH (Std. pH Units) (G)	5.5-11.5	G	8.44	G	8.63	阜	9.34	Celcius
Temperature, *C (G)		9	28.9	G	30	Ě	<u>30</u>	
Oil & Grease (G)	200	G	NO	Ē	5	Ě	7	mg/L
Total Cyanide (G)	0.4	G	NO_	Ē	0.013	Ē	ND_	mg/L
Cedmium (C)	0.7	ļċ	ND_	Ť	ND .	Ë	ND AA48	mg/L
Chromium (C)	5	ļċ	0.025	ç	0.043	č	0.018	mg/L
Copper (C)	2.7	٦	0.017	恃	0.168	Š	0.027	mg/L
Lead (C)	0.4	Fē	0.011	냕	0.053	Ě	ND ND	mg/L
Nickel (C)	2.3	Ē	<u>ND</u>	芐	0.018	le c		mg/L
Setenium (C)	0.2	Ťč	HD-	<del>إ</del> دِ	ND_	-	ND ND	mg/L
Silver (C)	0.5	ļc	<u> </u>	င	0.157	င့	ND ND	mg/L
Thafflum (C)		ļc	ND_	Ťċ	ND NO	င	ND NO	mg/L
Zinc (C)	3	<u> 1</u>	0.042	Ťċ	0.487	င	0.014	mg/L
Mercury (C)	0.01	ᄕ	ND_	ţς	0.005	<u> c</u>	<u>ND</u>	mg/L
		L	001	Ļ.	003	₩	005	
		6		T&	7726/2011 10:22 AM	Të:	10:00 AM	
1,1,1,-Trichloroethane	5.884	G	NED	G	NID	G	ND	mg/L
1,1,2,2-Tetrachloroethane	5.844	G	ND	G	ND	G	ND	mg/L_
1,1.2- Trichicroethane	5.844	G	NO	G	NED	G	NED	mg/L
1,1-Dichloroethane	5.844	G	ND	G	ND	G	ND	mg/L
1,1-Qichloroefhene	5.844	G	ND	G	ND	LG	NO_	mg/L
1.2.4-Trichlorobenzene	5.844	G	ND	G	ND	G	ND_	mg/L
1.2- Dichlorobenzene	5.844	G	ND	ß	ND	G	ND_	mg/L
1.2-Dichloroethane	5.844	G	ND	G	ND	G	NØ	mg/L
1,2- Dichioropropane	5.844	To	NO	G	ND	G	ND	mg/L
1.3- Dichicrobenzene	5.844	G	ND	G	ND	G	ND	mg/L
1,4- Dichlorobenzene	5.844	G	NO	G	ND	G	ND	mg/L
2-Chloroethyl vinyl ether	5.844	G	NO	G	ND	G	ND	mg/L
Acrolein	5.844	G	ND	ΙG	NØD	G	ND	mg/L
Acrytonitrile	5.844	G	NO	G	ND	G	ND	mg/L
Benzane	5.844	G	ND	G	ND	G	ND	mg/L_
Bromodichloromethane	5.844	G	ND	G	ND	G	ND	mg/L
Bromomethene	5.844	G	ND	G	ND	G	ND	mg/L
Carbon tetrachloride	5.844	G	NĐ	G	NO	G	ND	mg/L
Chlorobenzene	5.844	G	ND	G	NO	G	ND ·	mg/L
Chioroethane	5.844	G	ND	G	ND	G	ND	mg/L
Chloroform	5.844	TG	ND	G	ND	G	ND	mg/L
Chloromethene	5.844	ŤĞ	-	TG	ND	G	ND	mg/L
cts-1,3 - Dichloropropene	5.844	ŤĞ		TG	ND	G	ND	mg/L
eron the mercine of in about us	5.844	ŤĞ		TĜ	-	Te		mg/L

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•
Ethylbenzene
Methylene chloride
Naphthalene
Nitrobenzene
Tetrachicrosthene
Taluene
trans-1,2-Dichiprositione
trans-1,3-Dichioropropene
Trichloroethene
2,4,6-Trichlorophenol
2,4 Dichtorophenoi
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chlorophenol
2-Nitrophenol
3,3-Dichtorobenzidine
4-Chloro-3-methylphenol
4-Nitrophenol
Acenaphthene
Acenaphthylene
Anthracene
Azobenzene
Benzidine
Benzo(a)pyrene
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether
N-Nitrosodimethylamine
Phanoi

							AND DEPOSITE OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY O
5.844	G	ND	G	NEO	G	NO	mg/L
6.844	G	NED	G	NEO	G	ND CM	mg/L
5.844	G	ND	G	NED	G	ND	mg/L
5.844	G	ND	G	MD.	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	MD	G	ND	G	ND	mg/L
5.844	G	ND	0	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
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5.844	G	ND	G	ND	G	ND	mg/L
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5.844	G	ND	G	ND	G	ND	rng/L
5.844	G	NO.	ø	<b>K</b> Q	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	mg/L
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5.844	G	NĐ	G	ND	G	ND	mg/L
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5.844	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	<b>S</b> S	G	ND	mg/L
5.844	G	ND	G	NO	G	MD	mg/L
5.844	G	NO	G	ND	G	NO_	mg/L
5.844	G	ND	G	160	G	NO_	mp/L
5.844	G	ND	G	NO	G	ND_	mo/L
5.844	G	NED	G	ND_	G	ND	mg/L
5.844	G	NO	G	NO_	G	ND	mg/L
5.844	G	ND	G	ND .	G	NO	mg/L

You must complete and sign the certification statements on the reverse side

- CANGO POR CANGO PAGA

MSD 044520

### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2008

(Jan-Mar)

(Apr-June) √ (July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories
St. Louis Testing Laboratories

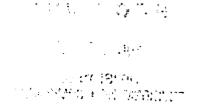
PART II:

**ANALYTICAL RESULTS OF SELF MONITORING** 

	MSD Sample Point Reference Number			008		007		008		009		
	Dates on Which Samples Were Collected			7/26/2012 7/26/2012		7/26/2012 7/26/2012	G: C:	7726/2012 7726/2012		7/26/2012 7/26/2012	ĺ	
	Times at Which Samples Were Collected		G:	9:51 AM	G:	10:05 AM	G:	10:40 AM	G:	10:35 AM 8:40 AM-3:58PM		
	IIIIOO EL TAILORI GENTANO TANA											
	0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.			tecord Sample Types (G,C,M, or E) And Results Below S=grab, C-composite, M=measured flow, E=estimated flow								Units
	PARAMETER Flow ★	LIMIT	E	24.000	E	8,900	E	130K	Ε	130K		Gal/Day
İ	Complete Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of t	Clidii i	c	ND	c	37	c	113	c	199		mg/L
	Biological Oxygen Demand (C)	0000	င်	12	č	<u>U/</u> 76	č	152	١č	270		mg/L
	Chemical Oxygen Demand (C)	***	c	7	č	38	č	269	tč	124		mg/L
	Total Suspended Solids (C)		Ğ	9.28	Ğ	8.7	Ğ	8.47	G	8.48		рН
	pH (Std. pH Units) (G)	<u>5.5 - 11.5</u>	-	noncino no transmini de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la con	믕	30.2	G	28.7	G	29		mg/L
	Temperature, °C (G)	60	G	29.3	G	ND	G	8	G	12		Celcius
	Oil & Greame (G)	200	G	5	·		•	ND	c	ND	_	<del> </del>
	Total Cyanide (G)	0.4	C	0.01	<u>c</u>	0.018	Č		c	ND ND		mg/L
•	Cadmium (C)	0.7	C	0.192	C	ND ND	c	ND ND	+		<del> </del>	mg/L
	Chromium (C)	5	C	0.018	Ę	0.029	<u>_</u>	0.034	F	0.024	<del> </del>	mg/L
	Copper (C)	27	G	0.027	G	0.024	G	0.038	Ē	0.033		mg/L
	Lead (C)	0.4	G	ND_	G	0.012	F	ND ND	G	ND 		Img/L
	Nickel (C)	2.3	G	ND	G	0.014	G	0.018	<u>G</u>	ND 115		mg/L
•	Selenium (C)	0.2	C	ND_	C	ND ND	<u>L</u>	ND	ļ <u>c</u>	ND_	├─	mg/L
	Silver (C)	0.5	C	ND	드	ND_	<u>  C</u>	0.018	<u>C</u>	0.018	<u> </u>	mg/L
	Thallium (C)	800	C	ND	C	0.018	<u>c</u>	ND	C	ND		mg/L
	Zinc (C)	3	C	0.014	LC	0.051	<u>  c</u>	0.105	<u>  c</u>	0.063	<u> </u>	mg/L
	Mercury (C)	0.01	C	ND	<u>  C  </u>	ND.	<u>  c</u>	<u>ND</u>	<u>  c</u>	ND	<u> </u>	mg/L
rprovide	per pe W.L. Isringhausen  8-16-12. SR		L	006	007		008		009			
' 01	n 8-16-12. SK			7726/2011 8:41 AM	G:  G:	7/26/2011 8:08 AM	G:  G:	7/26/2011 8:25 AM	G:	7/26/2011 8:21 AM		
	1,1,1,-Trichioroethane	5.884	G	ND	G	ND	G	ND	G	ND		mg/L
	1,1,2,2-Tetrachloroethane	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1,1,2- Trichloroethane	5.844	G	ND	G	DM	G	ND	G	ND		mg/L
	1.1-Dichloroethane	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1,1-Dichloroethene	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1.2.4-Trichlorobenzene	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1.2- Dichlorobenzene	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1,2-Dichloroethane	5.844	G	ND	G	ND	G	ND	G	ND	<u> </u>	mg/L
	1,2- Dichloropropane	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1,3- Dichlorobenzene	5.844	G	ND	G	ND	G	ND	G	ND		mg/L
	1,4- Dichlorobenzene	5.844	G	ND	G	ND	G	ND	G	ND	<u></u>	mg/L
	2-Chloroethyl vinyl ether	5.844	G	ND	G	ND	G	ND	G	ND	<u> </u>	mg/L
	Acrolein RECEIVED	5.844	G	ND	G	ND	G	ND	G	ND_	<b>Ļ</b>	mg/L
	Acrylonitrile	5.844	G	ND	G	ND	G	ND	↓ <u>G</u>	ND_	<b></b>	mg/L
	Benzene AUG 0 9 2012	5.844	G	ND_	<u>  G</u>	<u>ND</u>	<u>  G</u>	ND_	<u>le</u>	ND	<u> </u>	mg/L
	ADD 0 3 ZUIZ											

Bromodichioromethane
Bromomethane
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
cis-1,3 - Dichloropropene
Dibromochloromethane
Ethylbenzene
Methylene chloride
Naphthalene
Nitrobenzene
Tetrachloroethene
Toluene
trans-1,2-Dichloroethene
trans-1,3-Dichloropropene
Trichloroethene
2,4,6-Trichlorophenol
2,4,Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chlorophenol
2-Nitrophenol
3,3-Dichlorobenzidine
4-Chioro-3-methylphenol
4-Nitrophenol
Acenaphthene
Acenaphthylene
Anthracene
Azobenzene
Benzidine
Benzo(a)pyrene
Bis(2-chloroethoxy)methan
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether
N-Nitrosodimethylamine
49sA 6

5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
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5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	C	ND	mg/L
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5.844	G	ND	G	ND	G	ND	G	DM	mg/L
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5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	O	ND	mg/L
5.844	G	ND	G	ND	G	ND	ø	DM	mg/L
5.844	G	ND	G	ND	G	ND	G	MD	mg/L
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5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L_
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L_
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L_
5.844	G	ND	G	DM	G	ND	G	ND	mg/L
5.844	G	ND	G	NO	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5.844	G	ND	G	ND	G	ND	G	ND	mg/L
5 844	G	ND	G	ND	G	ND	G	ND	mg/L



#### INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

#### PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

#### PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION	
	All permittees must sign and complete the information below:	٦
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
	Print or type name of signing official: Livi Isringhausen	
	Title: Environmental Compliance Mgr Telephone: 362-6735	
	Signature: Date: 8/7// 2	
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DIVISION OF ENVIRONMENTAL COMPLIANCE

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> August 3, 2012 Lab No. 12E-1592 Invoice No. 153709 Page 1 of 12

**WASHINGTON UNIVERSITY** Campus Box 8229 660 South Euclid Ave.

St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

**SAMPLE ID:** 

WASTEWATER GRAB, SP001, 7/26/12, 10:12 A.M.

WASTEWATER COMPOSITE, SP001, 7/26/12, 8:20 A.M. – 3:53 P.M. WASTEWATER GRAB, SP003, 7/26/12, 10:22 A.M.

WASTEWATER COMPOSITE, SP003, 7/26/12, 8:30 A.M. - 4:20 P.M.

WASTEWATER GRAB, SP005, 7/26/12, 10:00 A.M.

WASTEWATER COMPOSITE, SP005, 7/26/12, 8:00 A.M. - 3:47 P.M.

WASTEWATER GRAB, SP006, 7/26/12, 9:51 A.M.

WASTEWATER COMPOSITE, SP006, 7/26/12, 7:50 A.M. - 3:50 P.M.

Units: mg/L Except As Noted

ANALYTE	SP001	SP003	S.P005	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	44	84	44	ND	5	5210 B	08/01/12
Chemical Oxygen Demand (C)	86	98	103	12	10	5220 D	07/26/12
Total Suspended Solids (C)	67	490	38	7	5	160.2	07/30/12
pH (Std. pH Units) (G)	8.44	8.63	9.34	9.28		150.1	07/26/12
Temperature, °C (G)	28.9	30.0	30.0	29.3	00 Apr 100 PM	170.1	07/26/12
Oil & Grease (G)	ND	5	7	ND	5	1664	07/30/12
Total Cyanide (G)	ND	0.013	ND	ND	0.01	335.4	07/31/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 2 of 12

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave.

St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

SAMPLE ID: WASTEWATER GRAB, SP007, 7/26/12, 10:05 A.M.

WASTEWATER COMPOSITE, SP007, 7/26/12, 8:12 A.M. - 3:50 P.M.

WASTEWATER GRAB, SP008, 7/26/12, 10:40 A.M.

WASTEWATER COMPOSITE, SP008, 7/26/12, 8:47 A.M. - 3:59 P.M.

WASTEWATER GRAB, SP009, 7/26/12, 10:35 A.M.

WASTEWATER COMPOSITE, SP009, 7/26/12, 8:40 A.M. - 3:58 P.M.

Units: mg/L Except As Noted

ANALYTE	SP007	SP008	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	37	113	199	5	5210 B	08/01/12
Chemical Oxygen Demand (C)	76	152	270	10	5220 D	07/26/12
Total Suspended Solids (C)	38	269	124	5	160.2	07/30/12
pH (Std. pH Units) (G)	8.70	8.47	8.48	este construction	150.1	07/26/12
Temperature, °C (G)	30.2	28.7	29.0		170.1	07/26/12
Oil & Grease (G)	ND	6	12	5	1664	07/30/12
Total Cyanide (G)	0.018	ND	ND	0.01	335.4	07/31/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab





**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 3 of 12

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWAŢER COMPOSITE, SP001, 7/26/12, 8:20 A.M. – 3:53 P.M.

WASTEWATER COMPOSITE, SP003, 7/26/12, 8:30 A.M. – 4:20 P.M.. WASTEWATER COMPOSITE, SP005, 7/26/12, 8:00 A.M. – 3:47 P.M. WASTEWATER COMPOSITE, SP006, 7/26/12, 7:50 A.M. – 3:50 P.M.

Units: mg/L

ANALYTE	SP001	SP003	SP005	SP006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Cadmium (C)	ND	ND	ND	0.192	0.01	200.8	07/30/12
Chromium (C)-	0.025	0.043	0.022	0.018	0.01	200.8	07/30/12
Copper (C)-	0.017	0.166	0.019	0.027	0.01	200.8	07/30/12
Lead (C) —	0.011	0.053	ND	ND	0.01	200.8	07/30/12
Nickel (C)	ND	0.018	ND	ND	0.01	200.8	07/30/12
Selenium (C)	ND	ND	ND	ND	0.01	200.8	07/30/12
Silver (C)	ND	0.157	ND	ND	0.01	200.8	07/30/12
Thallium (C)	ND	ND	ND	ND	0.01	200.8	07/30/12
Zinc (C) —	0.042	0.487	0.040	0.014	0.01	200.8	07/30/12
Mercury (C)	- ND	0.005	ND	ND	0.005	200.8	07/30/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

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August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 4 of 12

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave.

St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER COMPOSITE, SP007, 7/26/12, 8:12 A.M. – 3:50 P.M.

WASTEWATER COMPOSITE, SP008, 7/26/12, 8:47 A.M. – 3:59 P.M. WASTEWATER COMPOSITE, SP009, 7/26/12, 8:40 A.M. – 3:58 P.M.

Units: ma/L

Omis. mg/L						
ANALYTE	SP007	SP008	SP009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Cadmium (C)	ND	ND	ND	0.01	200.8	07/30/12
Chromium (C) -	0.029	0.034	0.024	0.01 :	200.8	07/30/12
Copper (C) -	0.024	0.038	0.033	0.01	200.8	07/30/12
Lead (C) -	0.012	ND	ND	0.01	200.8	07/30/12
Nickel (C)	0.014	0.083	ND	0.01	200.8	07/30/12
Selenium (C)	ND	ND	ND	0.01	200.8	07/30/12
Silver (C)	ND	0.018	0.018	0.01	200.8	07/30/12
Thallium (C)	0.018	ND	ND	0.01	200.8	07/30/12
Zinc (C)	0.051	0.105	0.063	0.01	200.8	07/30/12
Mercury (C)	ND	ND	ND	0.005	200.8	07/30/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite





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August 3, 2012 Lab No. 12E-1592

Page 5 of 12

Invoice No. 153709

**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

**SAMPLE ID:** WASTEWATER GRAB, SP001, 7/26/12, 10:12 A.M.

WASTEWATER GRAB, SP003, 7/26/12, 10:22 A.M. WASTEWATER GRAB, SP005, 7/26/12, 10:00 A.M. WASTEWATER GRAB, SP006, 7/26/12, 9:51 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

Units: mg/L	DS				
ANALYTE	SP001√	SP003 🗸	SP005 ✓	SP006√	MQL
1,1,1-Trichloroethane	ND	ND	ND	ND	0.25
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0.25
1,1,2-Trichloroethane	ND	ND	ND	ND	0.25
1,1-Dichloroethane	. ND	ND	ND	ND	0.25
1,1-Dichloroethene	ND	ND	ND	ND	0.25
1,2-Dichlorobenzene	ND	ND	ND	ND	0.25
1,2-Dichloroethane	ND	ND	ND	ND ·	0.25
1,2-Dichloropropane	ND	ND	. ND	ND	0.25
1,3-Dichlorobenzene	ND	ND	ND	ND	0.25
1,4-Dichlorobenzene	ND	ND	ND	ND	0.25
2-Chloroethyl vinyl ether	ND	ND	ND	ND	. 1.00
Acrolein	ND	ND	ND	ND	5.00
Acrylonitrile	ND	ND.	ND	ND	0.25
Benzene	ND	ND	ND	ND	0.10
Bromodichloromethane	ND	ND	ND	ND	0.25
Bromomethane	ND	ND	ND	ND	0.50
Carbon tetrachloride	ND	ND ,	ND	ND	0.25
Chlorobenzene	ND	ND	ND	ND	0.25
Chloroethane	ND	ND	ND ·	, ND	0.50
Chloroform	ND	ND	ND	ND .	0.25
Chloromethane	ND	ND	ND	ND	0.50
cis-1,3 – Dichloropropene	ND	ND	ND	ND	0.25

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/31/12

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SEE REVERSE FOR CONDITIONS.



August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 6 of 12

#### **WASHINGTON UNIVERSITY**

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

#### REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP001, 7/26/12, 10:12 A.M.

WASTEWATER GRAB, SP003, 7/26/12, 10:22 A.M. WASTEWATER GRAB, SP005, 7/26/12, 10:00 A.M. WASTEWATER GRAB, SP006, 7/26/12, 9:51 A.M.

Units: mg/L

**VOLATILE ORGANIC COMPOUNDS** 

ANALYTE	SP001 /	SP003 🗸	SP005,/	SP006 🗸	MQL
Dibromochloromethane	ND	ND	ND	ND	0.25
Ethylbenzene	ND	ND (	ND	ND	0.25
Methylene chloride	ND	ND	ND	ND	0.25
Tetrachloroethene	ND	ND	ND	ND	0.25
Toluene	ND	ND	ND	ND	0.25
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.25
trans-1,3-Dichloropropene	ND	ND	ND.	ND	0.25
Trichloroethene	ND	ND	ND	ND	0.25

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/31/12





August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 9 of 12

WASHINGTON UNIVERSITY Campus Box 8229

660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

**REPORT OF TESTS** 

SAMPLE ID: WASTEWATER GRAB, SP001, 7/26/12, 10:12 A.M.

WASTEWATER GRAB, SP003, 7/26/12, 10:22 A.M. WASTEWATER GRAB, SP005, 7/26/12, 10:00 A.M. WASTEWATER GRAB, SP006, 7/26/12, 9:51 A.M.

Units: mg/L SEMI-VOLATILE ORGANIC COMPOUNDS

ANALYTE	SP001 🗸	SP003 🗸	SP005 🗸	SP006 √	MQL
1,2,4-Trichlorobenzene	ND	ND	ND	ND	0.111
1,2- Diphenylhydrazine	ND	ND	ND	ND	0.111
2,4,6-Trichlorophenol	ND ·	ND	ND	ND	0.111
2,4,Dichlorophenol	ND	ND	ND	ND	0.111
2,4-Dimethylphenol	ND	ND	ND	ND '	0.111
2,4-Dinitrophenol	ND	ND	ND	ND	0.222
2,4-Dinitrotoluene	ND	ND	ND	ND	0.111
2,6-Dinitrotoluene	ND	ND	ND	ND	0.111
2-Chlorophenol	ND	ND	ND	ND	0.111
2-Nitrophenol	ND	ND	ND	ND	0.222
3,3-Dichlorobenzidine	. ND	ND	ND	ND	0.111
4-Chloro-3-methylphenol	ND	ND	ND	ND	0.222
4-Nitrophenol	ND	ND	ND	ND	0.222
Acenaphthene	ND	ND	ND	ND	0.111
Acenaphthylene	ND.	ND	ND	ND	0.111
Anthracene	ND	ND	ND	ND	0.111
Azobenzene	ND	ND	ND	ND	0.111
Benzidine	ND	ND	ND ·	ND	0.451
Benzo(a)pyrene	ND	ND	ND	ND	0.111

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/30/12 RECEIVED

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August 3, 2012 Lab No. 12E-1592 Invoice No. 153709 Page 10 of 12

#### **WASHINGTON UNIVERSITY**

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

**REPORT OF TESTS** 

**SAMPLE ID:** WASTEWATER GRAB, SP001, 7/26/12, 10:12 A.M.

WASTEWATER GRAB, SP003, 7/26/12, 10:22 A.M. WASTEWATER GRAB, SP005, 7/26/12, 10:00 A.M. WASTEWATER GRAB, SP006, 7/26/12, 9:51 A.M.

Units: mg/L

#### **SEMI-VOLATILE ORGANIC COMPOUNDS**

ANALYTE	SP001 /	SP003 🗸	SP005 🗸	SP006 🗸	MQL
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	0.111
Bis(2-chloroethyl)ether	ND	ND	ND	ND	0.111
Bis(2-chloroisopropyl)ether	ND	ND	ND	ND	0.111
Naphthalene	ND	ND	ND	ND	0.111
Nitrobenzene	ND	ND	. ND	ND	0.111
N-Nitrosodimethylamine ·	ND	ND	ND	ND	0.111
Phenol	ND	ND	ND .	ND	0.056

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/30/12





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August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 7 of 12

#### **WASHINGTON UNIVERSITY**

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/26/12, 10:05 A.M. WASTEWATER GRAB, SP008, 7/26/12, 10:40 A.M. WASTEWATER GRAB, SP009, 7/26/12, 10:35 A.M.

Units: mg/L **VOLATILE ORGANIC COMPOUNDS** 

ANALYTE	SP007√	SP008 🗸	SP009 🏑	MQL
1,1,1-Trichloroethane	ND	ND .	ND	0.25
1,1,2,2-Tetrachloroethane	ND	ND	ND	0.25
1,1,2-Trichloroethane	ND	ND	ND	0.25
1,1-Dichloroethane	ND	ND .	ND	0.25
1,1-Dichloroethene	ND .	ND	ND	0.25
1,2-Dichlorobenzene	ND	ND	ND	0.25
1,2-Dichloroethane	ND	ND	ND	0.25
1,2-Dichloropropane	ND	ND	ND	0.25
1,3-Dichlorobenzene	ND	ND	ND	0.25
1,4-Dichlorobenzene	ND	ND	ND	0.25
2-Chloroethyl vinyl ether	ND	. ND	ND	1.00
Acrolein	ND	ND	ND	5.00
Acrylonitrile	ND	ND	ND	0.25
Benzene	ND	ND	ND	0.10
Bromodichloromethane	ND	ND	ND	0.25
Bromomethane	ND	ND	ND	0.50
Carbon tetrachloride	ND	. ND	ND	0.25
Chlorobenzene	ND	ND	ND.	0.25
Chloroethane	ND	ND	ND	0.50
Chloroform	ND	ND	ND	0.25
Chloromethane	ND	ND	ND	0.50
cis-1,3 – Dichloropropene	ND	ND	ND	0.25

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/31/12

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**DIVISION OF ENVIRONMENTAL COMPLIANCE** 



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August 3, 2012 Lab No. 12E-1592 Invoice No.153709 Page 8 of 12

#### **WASHINGTON UNIVERSITY**

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP007, 7/26/12, 10:05 A.M.

WASTEWATER GRAB, SP008, 7/26/12, 10:40 A.M. WASTEWATER GRAB, SP009, 7/26/12, 10:35 A.M.

Units: mg/L VOLATILE ORGANIC COMPOUNDS

		·····		
ANALYTE	SP007	SP008	SP009	MQL
Dibromochloromethane	ND	ND	ND	0.25
Ethylbenzene	ND	ND	ND	0.25
Methylene chloride	ND	ND	ND	0.25
Tetrachloroethene	ND	ND	ND	0.25
Toluene	ND	ND	ND	0.25
trans-1,2-Dichloroethene	ND	ND	ND	0.25
trans-1,3-Dichloropropene	ND	ND	ND	0.25
Trichloroethene	ND	ND	ND	0.25

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/31/12





> August 3, 2012 Lab No. 12E-1592 Invoice No. 153709 Page 11 of 12

**WASHINGTON UNIVERSITY** Campus Box 8229 660 South Euclid Ave.

St. Louis, MO 63110

Attention: Livi Isringhausen

**REPORT OF TESTS** 

SAMPLE ID:

WASTEWATER GRAB, SP007, 7/26/12, 10:05 A.M. WASTEWATER GRAB, SP008, 7/26/12, 10:40 A.M. WASTEWATER GRAB, SP009, 7/26/12, 10:35 A.M.

Units: mg/L **SEMI-VOLATILE ORGANIC COMPOUNDS** 

GIRS. HIGH. SEMI-VOLATILE ORGANIC COMPOUNDS									
ANALYTE	SP007 ✓	SP008 J	SP009 /	MQL					
1,2,4-Trichlorobenzene	ND	ND	ND	0.105					
1,2- Diphenylhydrazine	ND	ND	ND	0.105					
2,4,6-Trichlorophenol	ND	ND	ND	0.105					
2,4,Dichlorophenol	ND	ND	ND	0.105					
2,4-Dimethylphenol	ND	ND	ND	0.105					
2,4-Dinitrophenol	ND	ND	ND	0.211					
2,4-Dinitrotoluene	ND	ND	ND	0.105					
2,6-Dinitrotoluene	ND	ND	ND	0.105					
2-Chlorophenol	ND .	ND	ND	0.105					
2-Nitrophenol	ND	ND	ND	0.211					
3,3-Dichlorobenzidine	ND	ND	ND	0.105					
4-Chloro-3-methylphenol	• ND	ND	ND	0.211					
4-Nitrophenol	ND	ND	ND	0.211					
Acenaphthene	ND	ND	ND	0.105					
Acenaphthylene	· ND	ND	ND	0.105					
Anthracene	ND	ND	ND	0.105					
Azobenzene	ND	ND	ND	0.105					
Benzidine	ND	ND ND		0.431					
Benzo(a)pyrene	ND	ND	ND	0.105					

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/30/12

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**DIVISION OF ENVIRONMENTAL COMPLIANCE** 





August 3, 2012 Lab No. 12E-1592 Invoice No. 153709 Page 12 of 12

#### **WASHINGTON UNIVERSITY**

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

**REPORT OF TESTS** 

SAMPLE ID: WASTEWATER GRAB, SP007, 7/26/12, 10:05 A.M.

WASTEWATER GRAB, SP008, 7/26/12, 10:40 A.M. WASTEWATER GRAB, SP009, 7/26/12, 10:35 A.M.

Units: mg/L

**SEMI-VOLATILE ORGANIC COMPOUNDS** 

ANALYTE	SP007	SP008	SP009	MQL
Bis(2-chloroethoxy)methane	'ND	ND	ND	0.105
Bis(2-chloroethyl)ether	· ND	ND	ND	0.105
Bis(2-chloroisopropyl)ether	ND	ND	ND,	0.105
Naphthalene "	ND ⁻	ND	ND	0.105
Nitrobenzene	ND	ND	ND	0.105
N-Nitrosodimethylamine	ND	ND	ND	0.105
Phenol	ND	ND	ND	0.053

MQL: Minimum Quantitative Limit ND None Detected Above MQL

Test Method: EPA 600/624 Date of Analysis: 07/30/12

Elevated MQL Due to Sample Extract Compositon

SR/krm

Steve Root, Manager Environmental Testing



# METROPOLITAN SEWER DISTRICT

#### INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

PART I:	IDENTIFYING INFORMATION			
Company Name:	Washington University Medical School	10243	53000	
Permit No:				
Premise Address:	660 South Euclid, St. Louis, MO 63110			
Reporting Period	:2012 [ (JAN-MAR) [	X (APR-JUN)	[] (JUL-SEP)	OCT-DEC)
PART II:	RECORD OF DISPOSAL OF RADIO	ACTIVE MATER	IALS TO THE SEWER	
	RADIONUCLIDE	ACTIVITY D	ISCHARGED (millicuries)	
C-14				0.5023
Ca-45				0.0460
H-3				26.0658
I-125	•		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.1905
P-32				0.4619
S-35	***************************************			0.2115
	TOTAL ACTIVITY DISCHARGED:			27.4780
PART III:	CERTIFICATION STATEMENTS			
Everyone must	s in the box under Item A.  complete the information under Items A  FICATION OF COMPLIANCE WITH		•	
I certifing government the Mi	fy that to the best of my knowledge & belief, ning disposal by release into sanitary sewage issouri Department of Health, respectively, I	, all requirements of e for material regular have been met for the	10 CFR Part 20.2003 and 19 ted by the Nuclear Regulator period covered by this repo	y Commission and
a system designed of the person or p information subm	nalty of law that this document and all atach d to assure that qualified personnel properly persons who manage the system, or those penitted is to the best of my knowledge and bel nitting false information, including the poss	gather and evaluate ersons directly respondief, true, accurate, a	the information submitted. Insible for gathering the information complete. I am aware that	Based on my inquiry mation, the there are significant
Print/Type name	of signing official: Karla Spafford			
Title: Radiation 8	afety Specialist	Telephone	e: <u>(314) 362-4968</u>	
Signature:	la MA	Date: 07/3	17/2012	
- i po-	100			RE:radipt.doc 2/00 RECEIVED

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DIVISION OF ENVIRONMENTAL COMPLIANCE



#### Metropolitan St. Louis Sewer District



Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913 Phone: 314,768,6200 www.stlmsd.com

management .

July 16, 2012

Livi Isringhausen
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 S. Euclid Ave., Campus Box 8229
St. Louis, MO 63110

Re: Change in compliance charge rate

For premise at:

660 S. Euclid Ave. St. Louis, MO 63110

Dear Livi Isringhausen:

As you probably are aware, citizens in the Metropolitan St. Louis Sewer District's boundaries voted on June 5, 2012 to revise the rate structure for MSD customers. This revised rate structure affects more than the charge for volume. It also changes the compliance charge that is assessed for commercial accounts. This charge is a separate line item on your monthly bill.

Previously, the compliance charge was a flat rate for all non-residential accounts. It is now a tiered rate, more accurately reflecting the actual costs involved for federal regulatory requirements to inspect and sample companies. In addition to changing to a more equitable tiered rate, MSD has also re-evaluated the costs involved and program requirements, and has been able to make changes to greatly reduce the overall impact of the compliance charge.

For the vast majority of non-residential accounts, the compliance charge will decrease. However, certain companies that federal regulations require to be inspected or have their wastewater sampled will see their compliance charge increase, due to the costs involved in conducting the inspections and sampling. Your facility is one of the companies that these federal regulations encompass.

Barring any recent changes at your facility, the new compliance charge for your MSD sewer account will be \$163.75 per month. Please note also that the tier, and associated compliance charge, can change as conditions change at your facility.

Please note that MSD recognizes that many companies receive more than one MSD bill, because they have more than one incoming water account. The above compliance charge will apply to only one MSD account for each premise, with any other accounts receiving the minimum compliance charge of \$23.00 per month. In addition, the minimum compliance charge for those additional accounts will further reduce to \$2.15 per month by July 1, 2015.

An insert explaining the compliance charge in more detail will be included with the August bill for all non-residential accounts. This will help insure that the person or department actually paying the bill will also be aware of the changes.

Sincerely.

METROPOLITAN ST. LOUIS SEWER DISTRICT

Douglas M. Mendoza, P.E.

Manager of Industrial Pretreatment

Industry:

WASHINGTON UNIVERSITY MEDICAL SCHOOL

From:

Chris Bulmahn

Date:

July 9, 2012

Re:

Change in Account Number

The account number for this company has been changed from: 5112216200

to: 1024353000

The Change is due to the need to have all industry account numbers conform to the billing premise # - based system, so that the correct "compliance fee tier" charge can be automatically added to the sewer bill each month.

MSD

#### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

51122162-00

Company Name:

Washington University School of Medicine

Effective:

Expiration:

12/31/2012

Permit No: Premise Address: <del>5112262-00</del>— 660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2012

(Jan-Mar) V

(Apr-June)

2/1/2009

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories St. Louis Testing Laboratories

PART II:

**ANALYTICAL RESULTS OF SELF MONITORING** 

MSD Sample Point Reference Numb	er		001		003		005		ACCUSTO ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AND ADDRESS AN
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PARAMETER	LIMIT	1	Record Sample =grab, C-comp						Units
Flow	***	E	14,500	LE.	64,500	E	340,000		Gal/Day
Biological Oxygen Demand	***	С	84	<u></u>	92	C	251	4	mg/L
Chemical Oxygen Demand	***	<u>C</u>	153	C	169	C	421		mg/L
Total Suspended Solids	****	C	56	<u></u>	87	C	144	4	mg/L
pH	5.5 - 11.5	G	8.19	G	8.41	.G	7.32		pH
Oil & Grease	200	G	ND	G	6	G	6	-	mg/L
Temperature	60	G	22.5	G	23.69	G	22.3		<u>Celcius</u>
Silver	0.5	С	ND	<u>  c</u>	< 0.05	<u>  c</u>	ND		mg/L
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You must complete and sign the certification statements on the reverse side.

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**DIVISION OF** ENVIRONMENTAL COMPLIANCE

### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2012

(Jan-Mar)

√ (Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories
St. Louis Testing Laboratories

Analysis Performed By: PART II:

**ANALYTICAL RESULTS OF SELF MONITORING** 

MSD Sample Point Reference Number	er		006	Market	007		008	- Appropriate in the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract	009	,
Dates on Which Samples Were Colle	cted	G: C:	4/19/2012 4/19/2012	G: C:	4/19/2012 4/19/2012	G: C:	4/19/2012 4/19/2012	G: C:	4/19/2012 4/19/2012	
Times at Which Samples Were Colle	DODROPHO WATERWATER WATER STREET	G: C:	9:30 AM 9:30am-4:15 pm	G: C:	8:43 AM 8:43 cm - 3:50 pm	G:	9:11 AM 9:11 am - 3:56 pm	G: C:	9:02 AM 9:02 cm - 4:03 pm	
***************************************		<del>•</del>	ord Sample Type	distriction of the same				Accomment	***************************************	
PARAMETER	LIMIT		rab, C-composit							Units
Flow	***	E	950	Ε	23,500	T	131,850		131,850	Gal/Day
Biological Oxygen Demand	***	С	ND	С	71		660		174	mg/L
Chemical Oxygen Demand	****	С	ND	C	105	Π	1420		324	mg/L
Total Suspended Solids	***	С	6	С	43		549		212	mg/L
рН	5.5 - 11.5	G	8.75	G	7.34	Ŀ	7.72		6.14	pH .
Oil & Grease	200	G	ND	G	5		9		5	mg/L
Temperature	60	G	21	G	22.3		28.7		29.4	Celcius
Silver	0.5	С	ND	С	ND	<u> </u>	ND		ND	mg/L
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You must complete and sign the certification statements on the reverse side.

#### INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

#### PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

#### PART IV: GENERAL CERTIFICATION STATEMENTS

A LA ALLE A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL A MILL
DISCHARGE MONITORING REPORT CERTIFICATION
All permittees must sign and complete the information below:
I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
Print or type name of signing official: Livi TSringhausen
Print or type name of signing official: Livi I Sringhausen  Title: Lavinnmental Comptiance Manager Telephone: 314-362-6735
Signature:

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DIVISION OF ENVIRONMENTAL COMPLIANCE



WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 April 26, 2012 Lab No. 12E-0848 Invoice No.149344 P.O. No.2915857T Page 1 of 7

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID:** WASTEWATER GRAB, SP 001, 04/19/12, 8:49 AM

WASTEWATER COMPOSITE, SP 001, 04/19/12, 8:49 AM - 3:52 PM

Units: mg/L except as noted

ANALYTE	001	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	84	5	5210 B	04/25/12
Chemical Oxygen Demand (C)	153	10	5220 D	04/23/12
Total Suspended Solids (C)	62	5	160.2	04/20/12
pH, S.U. (G)	8.19		150.1	04/19/12
Temperature, °C (G)	22.5		170.1	04/19/12
Oil & Grease (G)	ND	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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SEE REVERSE FOR CONDITIONS.



**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

April 26, 2012 Lab No. 12E-0848 Invoice No.149344 P.O. No.2915857T Page 2 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 003, 04/19/12, 9:21 AM** 

WASTEWATER COMPOSITE, SP. 003, 04/19/12, 9:21 AM - 4:05 PM

Units: mg/L except as noted

ANALYTE	003	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	92	- 5	5210 B	04/25/12
Chemical Oxygen Demand (C)	169	10	5220 D	04/23/12
Total Suspended Solids (C)	· 87 -	5	160.2	04/20/12
pH, S.U. (G)	8.41		150.1	04/19/12
Temperature, °C (G)	23.9		170.1	04/19/12
Oil & Grease (G)	6	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab





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St. Louis, MO 63110

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 005, 04/19/12, 8:32 AM

WASTEWATER COMPOSITE, SP 005, 04/19/12, 8:32 AM - 3:40 PM

Units: mg/L except as noted

ANALYTE	005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	251	5	5210 B	04/25/12
Chemical Oxygen Demand (C)	421	10	5220 D	04/23/12
Total Suspended Solids (C)	144	5	160.2	04/20/12
pH, S.U. (G)	7.32	elle alex dels seps	150.1	04/19/12
Temperature, °C (G)	22.3		170.1	04/19/12
Oil & Grease (G)	6	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

G)-Grab

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Attention: Livi Isringhausen

April 26, 2012 Lab No. 12E-0848 Invoice No.149344 P.O. No.2915857T Page 4 of 7

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 006, 04/19/12, 9:33 AM

WASTEWATER COMPOSITE, SP 006, 04/19/12, 9:33 AM - 4:15 PM

Units: mg/L except as noted

ANALYTE	006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	ND	5	5210 B	04/25/12
Chemical Oxygen Demand (C)	ND	10	5220 D	04/23/12
Total Suspended Solids (C)	6	5	160.2	04/20/12
pH, S.U. (G)	8.75	200-007-009	150.1	04/19/12
Temperature, °C (G)	21.4		170.1	04/19/12
Oil & Grease (G)	ND	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 April 26, 2012 Lab No. 12E-0848 Invoice No.149344 P.O. No.2915857T Page 5 of 7

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID:** WASTEWATER GRAB, SP 007, 04/19/12, 8:43 AM

WASTEWATER COMPOSITE, SP 007, 04/19/12, 8:43 AM - 3:50 PM

Units: mg/L except as noted

	,			
ANALYTE	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	71	5	5210 B	04/25/12
Chemical Oxygen Demand (C)	105	10	5220 D	04/23/12
Total Suspended Solids (C)	43	5	160.2	04/20/12
pH, S.U. (G)	7.34		150.1	04/19/12
Temperature, °C (G)	22.3		170.1	04/19/12
Oil & Grease (G)	5	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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April 26, 2012 Lab No. 12E-0848 Invoice No.149344 P.O. No.2915857T Page 6 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 008, 04/19/12, 9:11 AM

WASTEWATER COMPOSITE, SP 008, 04/19/12, 9:11 A.M. - 3:58 PM

Units: mg/L except as noted

ANALYTE	008	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	660	20	5210 B	04/25/12
Chemical Oxygen Demand (C)	1420	10	5220 D	04/23/12
Total Suspended Solids (C)	549	5	160.2	04/20/12
pH, S.U. (G)	7.72		150.1	04/19/12
Temperature, °C (G)	28.7		170.1	04/19/12
Oil & Grease (G)	9	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab





**WASHINGTON UNIVERSITY** 

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April 26, 2012 Lab No. 12E-0848 Invoice No.149344 P.O. No.2915857T Page 7 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 009, 04/19/12, 9:02 AM

WASTEWATER COMPOSITE, SP. 009, 04/19/12, 9:02 AM - 4:03 PM

Units: mg/L except as noted

ANALYTE	009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	174	5	5210 B	- 04/25/12
Chemical Oxygen Demand (C)	324	10	5220 D	04/23/12
Total Suspended Solids (C)	212	5	160.2	04/20/12
pH, S.U. (G)	6.14		150.1	04/19/12
Temperature, °C (G)	29.4		170.1	04/19/12
Oil & Grease (G)	5	5	1664	04/20/12
Silver (C)	ND	0.05	200.7	04/24/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

Steve Root, Manager **Environmental Testing** 

SR/krm

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**DIVISION OF ENVIRONMENTAL COMPLIANCE** 



#### Metropolitan St. Louis Sewer District

Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913

Phone: 314.768.6200 www.stimsd.com

May 3, 2012

Livi Isringhausen
Environmental Compliance Manager
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 S. Euclid Ave, Campus Box 8229
St. Louis, MO 63110

Re: Discharge Permit No:

5112216200 - 2.1

For premise at:

660 S. Euclid Avenue

St. Louis, MO 63110

Dear Ms. Isringhausen:

The Metropolitan St. Louis Sewer District Wastewater Discharge permit for the above premise expires on December 31, 2012. Under the terms of the permit, you must apply for renewal at least 180 days prior to the expiration date.

We have enclosed an Industrial User Questionnaire form and instructions. You also may download an electronic version from MSD's website at www.stlmsd.com. This questionnaire serves as your permit application. Please complete and return the questionnaire to us no later than <u>July 1, 2012</u>. You may skip Section G of the questionnaire. Please retain a copy for your files.

We will use the questionnaire and our records on your facility to prepare a draft permit. The draft permit will be sent to you for comment, prior to sending a final permit.

We appreciate your cooperation and support in helping us to comply with the federal regulations. If you have any questions or need assistance in completing the questionnaire, please contact me at 314.436.8756.

Sincerely.

METROPOLITAN ST. LOUIS SEWER DISTRICT

Scott M. Rehmer Assistant Engineer

Enclosures: IUQ form, instructions

cc: Doug Mendoza Jason Gill

MSD

### METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT



PART I: IDENTIFYING INFORMATION	•	
Company Name: Washington University Medical School	51/2216200	
Permit No:		
Premise Address: 660 South Euclid, St. Louis, MO 63110		
Reporting Period: 2012 X (JAN-MAR)	☐ (APR-JUN) ☐ (JUL-SEP) ☐ (OCT-DE	
Reporting Ferrod. 2012		
PART II: RECORD OF DISPOSAL OF RADIO	ACTIVE MATERIALS TO THE SEWER	
RADIONUCLIDE	ACTIVITY DISCHARGED (millicuries)	
C-14	0.0360	
Ca-45	0.0250	•
Co-60	0.0040	
H-3	1.1294	
I-125	0.3874 0.33740	<i>.</i>
+125v-011	-0.0500	V.
P-32	1.0090	
S-35	. 0.2232	
TOTAL ACTIVITY DISCHARGED:	2.8140	
PART III: CERTIFICATION STATEMENTS  Place your initials in the box under Item A.  Everyone must complete the information under Items A  A. CERTIFICATION OF COMPLIANCE WITH ST		
I certify that to the best of my knowledge & belief, a	all requirements of 10 CFR Part 20.2003 and 19 CSR Part 20-10.09 for material regulated by the Nuclear Regulatory Commission and the	0 1e
B. RADIOACTIVE MATERIALS DISCHARGE R	REPORT CERTIFICATION	
system designed to assure that qualified personnel properly gat the person or persons who manage the system, or those persons	nents were prepared under my direct supervision in accordance with ther and evaluate the information submitted. Based on my inquiry of s directly responsible for gathering the information, the information rate, and complete. I am aware that there are significant penalties for nd imprisonment for knowing violations.  APR 2 0 2012	•
Print/Type name of signing official: David M Kershman	DIVISION OF	
Title: Radiation Safety Specialist III	Telephone: (314) 362-2996 ENVIRONMENTAL COMPL	IANCE

Date: 04/18/2012

Signature:

RE: radrpt.doc 2/00

MSD

#### Jason Gill

From:

Isringhausen, Mary [isringhausenm@wusm.wustl.edu]

Sent:

Friday, March 23, 2012 9:30 AM

To:

Jason Gill

Subject:

Message

Attachments: solvent list 2012.xls

Good Morning! Please include silver recovery at all sample points except point #006. Attached is a solvent list.

Please let me know if you need anything else.

Livi Isringhausen Environmental Compliance Manager Washington University School of Medicine office 314-362-6735 cell 314-713-3901 fax 314-362-1095 http://ehs.wustl.edu/



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3/27/2012

Washington University Medical School 51/22162-00

acetone acetonitrile acrylamide butanol carbon tetrachloride chloroform cyclohexane dichloroethane ethyl acetate formaldehyde isobutanol methyl alcohol oil pyridine tetrachlorethylene tetrahydrofuran toluene trichlorethylene xylene Benzenamine cyclohexanone aceticacid ethyl ester ehtyl ether

### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL FACILITY REINSPECTION REPORT

MSD

Prem MSD Comp Titl Insp Othe Insp	any: Washington University School of ise Address: 660 S. Euclid Classes: SIU  CIU  Surch  Multi- no Process Flow  Multi- any Representative: Livi Isringhause e: Environmental Compliance Manager ector: Jason Gill rs Present: None ection Date: 2/27/12 Time: From  ALL ITEMS ARE TO BE COMPLETED BASED ON INFORMATION OBTAINED OR PROVIDED BY COMP	Potential User   9:00 AM VEVENTS SI	Toxic Was Special To 12:2	Zip Code: ste  Non-Tox Handling/Billi Phone#: 314-3  25 PM (Last In INSPECTION. ANSWELL AS INF	ic Proc Waste  ng	
**	* DATABASE ALSO UPDATED WITH APPROPRI	ATE CHANGE	<u> </u>	attached databa	se reports ***	
1.	A. ARE THERE ADDITIONAL NON-STORMWA List them, note any changes: $\frac{51}{01}$	122161-00,	511221		8-00, 51122176-	
٠	B. Did all acct no's have water usa C. If no to B, explain:			,	Yes No	
2.	PROCESSES & CLEANUP/WASHDOWN:	Cont/ Batch	Water Used?	Frequency of discharge	Sample pt.	
	Research & teaching labs	Cont	Yes	Daily	001, 003, 005,	
	Housing & care of research mice	Cont	Yes	Daily	007, 008, 009	
					008, 009	
	Kitchen services Hazardous materials clean-up	Batch Batch	Yes	Daily Daily	005	
	(Building 80)	Baccii		Daily	006	
		(None)	N/A			
		(None)	N/A			
3.	PRETREATMENT (other than grease traps) -	describe:			Sample pt.	
	pH neutralization				003,005,006,00	
	Silver recovery				001, 003, 005	
		·····	V			
4. If y	DOES COMPANY HAVE ANY GREASE TRAPS? es: A. List sample points: 005 B. What is the frequency for cle		aintenanc	e? Quarterly	Yes⊠ No□	
	C. Are any additives used in tra D. If yes to C, was co. warned MSD E. Was co. informed that MSD perfor	will bill t			Yes☐ No⊠ 1se? Yes☐ No☐ Yes⊠ No☐	
5. HAS COMPANY CONSTRUCTED NEW BLDGS/ADDITIONS WITH SEWERS SINCE LAST INSP? Yes No Lif yes: A. Ask company: Did they notify MSD's Plan Review group? Unknown Yes No B. If no or unknown, has inspector notified Plan Review group? Yes No C. Comments:						
6. If y	HAS COMPANY BEGUN DISCHARGING ANY NE es: A. List pollutants & process: B. Will MSD STP exceed existing C. Will MSD STP's discharge exce (MSD must notify MDNR if B or D. Comments:	NPDES disc	charge li 'l for an	mit(s)? y new pollutant	Yes No	
	**************************************					

					FR 405-471) <u>OPERATIONS</u> ? iny discharge):	Yes No
	ES CATEGORIO A. At which		rer combil	NE WITH	H NON-CAT. WW PRIOR TO SAMPLING?	Yes□ No⊠
ii yes:	B. Current	applied fa		'explai	Is it correct?	Yes No
	ANY WASTEWA	•	r to produ	UCTION	OR MASS BASED STANDARDS?	Yes□ No⊠
	product		r dischar		t limits, has the long term avg ume changed by 20% or more?	Yes No
	E ANY RADIO A. Descril	•			Materials are collected from al and brought to Bldg. 80 for Solids are hauled, liquids are discharged to sanitary sewer.	disposal.
	C. Most re	ecent autho	rization (	date:	on for disposal to sewer? NA	
					APPEAR EXCESSIVE? needed changes:	Yes□ No⊠
А.	The school	ol of med: .es, washdo	cine has wn from t	he an	reat amount of water use from imal testing building, and other a usage was observed during the wa	large-scale
	SED ON OBSE				, DOES COMPANY APPEAR TO HAVE	Yes⊠ No□
		e: <u>Coolin</u>			ative loss - an RF is applied t	to three of
• В.		n Factor P	rogram" bi		e given to company? s not discharged to sewer)	Yes⊠ No□
OR	WITHIN THE	LAST 12 MO	NTHS (if	last i	E LIMITS SINCE LAST INSPECTION  sp <12 months ago)?  oblem resolved?	Yes□ No⊠
<del>-</del>	Pollutant	When	Points		Describe	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
-				N/A N/A		
				N/A		
-				N/A		
В.	Comments:			N/A		
					ATMENT LIMITS SINCE THE LAST NAD last insp <12 months ago)?	Yes No
	A.	1.7le			oblem resolved?	•
Г	Pollutant	When	Points	Y/N N/A	Describe	
F			<del></del>	N/A		
F	. ,			N/A		
-				N/A N/A		
Ь В.	Comments:	<u> </u>	<u> </u>	1 14/ FA		

	. HAV yes:	Α.	Upsets? By	ROBLEM DISCHARGES SIN passes of pretreatmer ug discharges? [] ked:	nt fac	ilities?[		Yes∏ No⊠
	CHE	MIC		OF PROCESS TANKS, ST I SANITARY SEWERS OR e done?			R STORED	Yes∏ No⊠
Ιf	no:	В.	waste are col containment par from escaping.	ntrolled? located in Building lected and process lents or in a room An emergency respon ll emergency generat	sed). with se tea	Stored a bermed um is on	d waste materia d doorway to pre hand at all times	ls are on vent spills
	COM	IPAN		DURING INSPECTION, A PEAR TO IMPAIR STORMW			REAS WHERE	Yes□ No⊠
	C.	Was		e done? water Discharges" br ther there are any p			company?	Yes⊠ No□
			OMPANY HAVE ANY	SPILL CONTROL OR SLU	G DISC	HARGE CO	NTROL PLANS?	Yes⊠ No□
Ιf	yes:	Α.	mil to the			Last	Update needed	
			Title	A 7933 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 1		Update	Explain if ye	; S
		ŀ	1. SPCCP			8/1/09	NO N/A	
	В.		e any Plans need	ed (in addition to to pany and request)	hose 1	isted in		Yes No
19 If		А. В.	Parts washer so Priority pollut How is spent so	MAINTENANCE SHOP PAR lvent name: ants (or "none"): lvent disposed? vents are not included			riority pollutants	Yes No
			monitored for unl	less conditions show po	tential	discharg	es)	
				LVENTS USED (OTHER T				Yes⊠ No□
11	yes:	м.	components	Used for?		433/469 ess?	How disposed?	Priority Pollutant?
	·	(se	ee attached	Lab reagents		No 🛛	Hauled off site	Yes No
		so.	lvent list)		1/2 - F	7	70.7	
					Yes	No No		Yes No
			44	•	Yes	Noll		Yes No
				· · · · · · · · · · · · · · · · · · ·	Yes	No	,	Yes No
			****		Yes	No	7.70	Yes No
21				.3/433/469-REGULATORY				Yes□ No⊠
Ιf	yes:	Α.	Is it part of a	Spill/Slug Control	Plan l			] 2. []] No []
				e of last update for		<del></del>		
				of the Spill/Slug P s all 413/433/469 so			the files?	Yes No Yes No
				D, write company and			tal and/or update	<u>2</u> )

3

22. AR A.	E EMERGENCY NOTIFICATION PROCEDURES POSTED THAT INCLUDE MSD CONTACTS?  Was company provided notification cards & told to post where emergency response personnel can locate them?	Yes⊠ No□ Yes⊠ No□
	(Must post if co. generates process wastewater or stores chemicals of	concern)
23. IS If yes:	B. If other document, date & description: C. How frequently is sampling required?  D. How frequently are reports required?  Quarterly	Yes No
	E. Have reports been on-time, complete & signed by proper person? F. If no, explain:	Yes No
	A. Is the self-monitoring required by MSD?  B. Does sample collection time period match co's production shifts?  C. Are representative grab/comp samples collected?  D. Are EPA-approved 40 CFR 136 wastewater test methods used?  E. If no to B, C, or D, explain needed changes:	Yes No No Yes No No Yes No Yes No Yes No Yes No
PC	ES CO. CONTINUOUSLY MONITOR AT SAMPLE INT AND KEEP A PERMANENT RECORD FOR: pH, TEMP, LEL?	Yes No
II yes:	A. At which SPs?  B. Does company submit quarterly summaries?  C. If no, explain:	Yes No
26. DC	ES MSD SPLIT SAMPLES WITH THE COMPANY?	Yes□ No⊠
If yes:	A. Is company having the samples analyzed B. How does company insure proper preservation, holding times & analytical met	Yes No
	C. Has company submitted results of all split sample analyses since the last insp?  D. Have results been submitted within 28 days of the collection's calendar quarter?  E. If no to C, or D, explain:	Yes No
G.	F. Does company still want to split samples?  Comments:	Yes No
su	COMPANY UNDER ANY ENVIRONMENTAL ENFORCEMENT ORDERS OR REQUIREMENTS TO BMIT COMPLIANCE SCHEDULE REPORTS?  A. Type and date:	Yes□ No⊠
ir yes.	B. Have the reports & actions been on-time & complete?  C. If no, explain:	Yes No
[S WW	K COMPANY: IS CO. IN COMPLIANCE W/APPLICABLE NESHAP REGS FOR WW DISCHARGES?  OME MDNR-issued Title V air permits for specific processes allow pre-approved discharge.] [City/County-issued air permits are not NESHAP permits.]	Yes⊠ No□
If no:	A. Describe:  B. Was MDNR Air Pollution Control informed? ( <u>must be done</u> )	Yes No
29. DC If no:	ES COMPANY RETAIN ALL WASTEWATER RECORDS FOR AT LEAST 5 YEARS?  A. How long does company retain records?  B. Was company told to retain for at least 5 years, per ordinance?	Yes⊠ No□ Yes□ No□
Ċ.	Where are they kept? File on site in Environmental Manager's office in 80	
30. DO	MSD CLASSIFICATIONS NEED TO BE REVISED?  A. Indicate correct classifications:  SIU CIU Surch. Potential Toxic Waste Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic Proud Non-Toxic	

(08/11)

32.	If yes: A. Is company's discharge segregated from other tenants' discharge?  B. If no to A, does the company own the bldg/receive the MSD bills?  C. If yes to B, was company informed it is responsible for total discharge, or else must provide segregated sample points?  D. If no to B, are any Process/P&E Wash-type wastes discharged?  E. If yes to D, are the wastes completely innocuous?  (Explain why:)  F. If yes to D, and no to E, company must accept responsibility or presegregated SP. Acceptance letter date: Or write co. w/requiced G. If no to D or yes to E, are limits "alert only" on PIMS?  H. Comments:								No
		C.	If ye	s, explair	1: <u> </u>				
		D.			cords review g reports?	ved & verified	d for special NA	Yes	No
			nangi	Tud\priii	ig reports?				
33.	SAI	MPLE	POINT	'S				DJ ·	(y/n)
	SP		001	Fed.Reg.	N/A	Components:	Sanitary, process waste, wash, lab waste, , NCCV reject, storm water		No
	SP		003	Fed.Reg.	N/A	Components:	Sanitary, process waste, lab waste, P&E wash, water	storm	No
	SP	# .	005	Fed.Reg.	N/A	Components:	Sanitary, process waste, he blowdown, NCCW, kitchen waste, RO restorm water	waste,	No
	SP	#	006	Fed.Reg.	N/A	Components:	Sanitary, P&E wash, storm v	water	No
	SP	#	007	Fed.Reg.	N/A	Components:	Sanitary, process waste, wash, lab waste, NCCW, water		No
	SP	#	008	Fed.Reg.	N/A	Components:	Sanitary, P&E wash, lab w	waste,	No
	SP	#	009	Fed.Reg.	N/A	Components:		vaste,	No
		A.	List	SPs: SP00			cred, and told why?	Yes⊠ Yes⊠	
35. If y	ARI 'es:	E DI	SCHARG		SPs SMALL/IF		GH TO ALLOW GRAB SAMPLES?	Yes	
36.					······································	3? (list each	lateral separately)	Yes 🗌	No⊠
			SP # SP #		ponents:				<u></u>
37. If y	DO	ANY	SAMPL	E POINTS	including Ur	nsampled/Dummy	y SPs) RECEIVE STORMWATER? , 007, 008, 009	Yes⊠	No

38.	WERE <u>ALL</u> SAMPLE POINTS (except Dummy SPs) OPENED & INSPECTED? No SPs☐ Yes⊠ No	<b>ɔ</b> □
	A. If any SPs cannot be located or opened, explain:	
	B. If any SP descript's need to be changed, explain:	
	C. Was ANY grease or other problem/debris observed in any SP? Yes No	Σc
	D. If yes to C, list SPs & describe:	
	E. If yes to C, was company directed to take corrective actions?  Yes No	>
39.	REVIEW THE SAMPLE POINT MAP! Last map revision date: 2/28/11	
	A. Is the map correct and accurate in <u>all</u> its details? Yes $\boxtimes$ No	<b>&gt;</b> □
	B If no, what changes are needed:	
40.	DO INSTRUCTIONS FOR "Contact Prior to Sampling" OR Yes No	<b>⊳</b> ⊠
	FIELD VISIT "Special Instructions" NEED REVISION?	
If ye	es: A. List needed changes:	
USE T	THIS SPACE FOR ANY OTHER COMMENTS/OBSERVATIONS PERTINENT TO YOUR INSPECTION OF THIS SITE	
	new building addition, 425 S. Euclid, is operational but still not yet fully	-

occupied, but the very top floor should be full next year.

There are still wet film processors being used in the laboratory settings for x-rays

There are still wet film processors being used in the laboratory settings for x-rays purposes. In a confirmation e-mail sent on 3/23/12 from facility contact Livi Isringhausen, silver recovery in the form of metallic replacement takes place at sample points 001, 003, & 005, but ti no longer occurs at SP006. Metallic replacement has been deactivated in PIMS at SP006.

#### SROPOLITAN ST. LOUIS SEWER DISTRI AL DATA SHEET - FACILITY INFORM

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

INDUSTRIAL USER CLASSIFICATIONS

WUNNENBERG INFO.

SIU CRITERIA

01/01/2008

06/09/1998 TOX

Base Map 19G3 Wun:St. Louis City & Co. Grid: J 20 Page 26

PR25 Process Disch => 25,000 GPD

GENERAL INFORMATION

Office Mailing Address

660 S. Euclid Ave., Campus Box 8229 St. Louis, MO. 63110

**Billing Address** 

660 S. Euclid Ave. St Louis, MO. 63110

BILL

FLD1

FLD2

2

INSPECTION INFORMATION

Next Due Insp Rslt

02/27/2012 RIN Jason Gill PERMIT INFORMATION

Issue Date:

Expire Date: 12/31/2012 Extended Date: 01/31/2008

Writer Scott Rehmer

Issue Date: 02/01/2008 Expire Date: 12/31/2012 Extended Date: 05/31/2011

Writer Scott Rehmer Issue Date: 06/01/2011 Expire Date: 12/31/2012

**Extended Date:** 

Writer Scott Rehmer IUQ INFORMATION

IUQ Recvd Date: 08/19/2002 Reviewer: Fabian Grabski IUQ Recvd Date: 06/28/2007

OTHER AGENCIES INFORMATION

Reviewer: James Goodall

CONTACTS Livi Isringhausen

Environmental Compliance Manager OFF.

Environmental Compliance Manager OFF Environmental Compliance Manager FAX **Environmental Compliance Officer** 

OFF Environmental Compliance Manager FAX Environmental Compliance Manager

(314) 362-6735 Ext. (314) 362-1095 Ext. (314) 935-7864 Ext.

(314) 362-6735 Ext.

(314) 362-1095 Ext. (314) 362-6735 Ext.

Livi Isringhausen OPERATIONAL INFORMATION

Livi Isringhausen

Livi Isringhausen

Linda Vishino

OFF1 Livi Isringhausen

Work Days: M Т w T F S 7,000 09:00AM 8.0 Y Y Y Y 500 06:00PM 8.0 Y Y

Total Emp: 7,500

Hrs: 16.0

NON-SEWERED WASTE

On-Site Stor	rage Y On-Site Dis	sposal N	Off-Site Di	sposal Y	
06/28/2007	Organic Compounds			3520	GAL
06/28/2007	Acids and/or Alkalies			800	GAL
02/28/2011	Equipment Oils and/or	Grease		9,000	GAL
06/28/2007	Radioactive Waste			1500	LBS
06/28/2007	Infectious Waste			398000	LBS
02/28/2011	Other	Lab chem	icals/reagents	68,000	LBS
02/28/2011	Solvents/Thinners			52,000	LBS
02/28/2011	Paints or Paint Sludges	;		160	LBS
02/28/2011	Kitchen/Food Service (	Grease		2,500	LBS

01/03/1997 Nuclear Regulatory Commission 24-00167-11 **Nuclear Regulatory Commission** 01/03/1997 24-00167-11 01/04/1997 MDNR - Hazardous Waste Program 01591 01/04/1997 MDNR - Hazardous Waste Program 01591 01/05/1997 EPA - Hazardous Waste Program MOT 300010857 01/05/1997 EPA - Hazardous Waste Program MOT 300010857 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246498 MSD - Billing Account Number 09/28/2005 00377308 09/28/2005 MSD - Billing Account Number 00246504 09/28/2005 MSD - Billing Account Number 00246499 09/28/2005 MSD - Billing Account Number 00246496 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246495 MSD - Billing Account Number 09/28/2005 00377308 09/28/2005 MSD - Billing Account Number 00246496 MSD - Billing Account Number 09/28/2005 00246499 09/28/2005 MSD - Billing Account Number 00246504 MSD - Billing Account Number 07/21/2011 00473620

RAW MATERIALS

EFF DATE MATERIAL_DESCRIPTION QUANTITY UNIT

05/07/2004 Laboratory chemicals & reagents SIC INFORMATION SIC DESCRIPTION

0279 Animal Specialties, NEC

8221 Colleges, Universities & Professional Schools

8733 Noncommercial Research Organizations

Report No. PIMS012A

Data Date & Time:

03/28/2012

9:07:03 am

03/28/2012

9:07:03 am

#### ROPOLITAN ST. LOUIS SEWER DISTRI IAL DATA SHEET - FACILITY INFORM

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL Premise Address 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

PRODUCTS

EFF DATE DESCRIPTION

05/07/2004 Medical school 05/07/2004 Research institution

05/07/2004 Research animal care & housing

UNIT

AVG_PROD MAX_PROD

SEWER ACCOUNTS
Sewer Accounts
5112216200
1048106300
5112216100
5112216700
5112216800
5112217601
9000637201

WATER CONSUMPTION AND WASTE	VATER DIS	CHARGE						
Start Date = 03/01/2011 12800000an	<b>1=</b> 03/01/	2012 12:59:5	9P <b>M</b>	days	Cdays			
Acct. No.	Co	nsumption					Disc	harge
1048106300	CCF's	Gallons					Gal/ Wday	Gal/ Cday
1048106300 02/04/2011 05/03/2011	6,307	6,307	Α	89	89		89 .	
1048106300 05/04/2011 08/02/2011	25,618	31,925		91	91		180	
1048106300 08/03/2011 11/02/2011	14,884	46,809		92	92		272	
RF 1.00 Acct. Total	46,809	35,015,566		2	72	272	128,734	128,734
5112216100	CCF's	Gallons					Gal/ Wday	Gal/ Cday
5112216100 02/17/2011 05/03/2011	1,060	1,060	A	76	76		76	
5112216100 05/04/2011 08/02/2011	1,700	2,760		91	91		167	•
5112216100 08/03/2011 11/02/2011	1,650	4,410		92	92		259	
RF 1.00 Acct. Total	4,410	3,298,909		2	.59	259	12,737	12,737
5112216200	CCF's	Gallons					Gal/ Wday	Gal/ Cday
5112216200 02/27/2011 05/06/2011	9,718	9,718	A	69	69		69	
5112216200 05/07/2011 08/03/2011	13,348	23,066		89	89		158	
5112216200 08/04/2011 11/15/2011	13,084	36,150		104	104		262	
RF 0.90 Acct. Total	36,150	27,042,080		2	62	262	92,893	92,893
5112216700	CCF's	Gallons					Gal/ Wday	Gal/ Cday
5112216700 02/17/2011 05/27/2011	18,269	18,269	A	100	100		100	
5112216700 05/28/2011 08/10/2011	36,359	54,628		75	75		175	, ,
5112216700 08/11/2011 11/15/2011 RF 0.68 Acct. Total	27,329	81,957		97	97		272	
5112216800	81,957 <b>CCF's</b>	61,308,098 Gallons		2	72	272	153,270 Gal/ Wday	153,270 <b>Gal/ Cday</b>
5112216800 11/03/2010 03/01/2011	2,700	2,700	A	119	119		119	
5112216800 03/02/2011 05/03/2011	1,200	3,900		63	63		182	
5112216800 05/04/2011 08/02/2011	1,600	5,500		91	91		273	
5112216800 08/03/2011 11/02/2011	1,600	7,100		92	92		365	
RF 1.00 Acct. Total	7,100	5,311,169		3	65	365	14,551	14,551
5112217601	CCF's	Gallons					Gal/ Wday	Gal/ Cday
5112217601 02/09/2011 05/06/2011	0	0 /	A	87	87		87	
5112217601 05/07/2011 08/03/2011	0	0		89	89		176	
5112217601 08/04/2011 11/21/2011	. 0	0		110	110		286	•
RF 1.00 Acct. Total	0	0		2	86	286	1	1
9000637201	CCF's	Gallons					Gal/ Wday	Gal/ Cday
9000637201 02/10/2011 05/06/2011	15,471	15,471	A	86	86		86	
9000637201 05/07/2011 08/11/2011	21,056	36,527		97	97		183	
9000637201 08/12/2011 11/17/2011	19,981	56,508		98	98		281	
RF 0.77 Acct. Total Facility Total	56,508	42,270,922		2	81	281	115,831	115,831
racinty total	232,934			************************	TT=P188888888888888888888888888888888888	Shquaranas		

Report No. PIMS012A Data Date & Time:

03/28/2012

03/28/2012

9:07:03 am 9:07:03 am

#### ROPOLITAN ST. LOUIS SEWER DISTRI IAL DATA SHEET - FACILITY INFORM INDUS

INDUSTRY NAME

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address

PRIMARY MSD ACCOUNT NO. 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

CONNECTION and SAMPLE POINT INFORMATION		000000000000000000000000000000000000000	<u></u>		***************************************	
LATERAL NO. Lateral Type	DSMH Tr	eatment Area	Bissell	Point		
01 Sanitary Or Combined	20G2 232C	Trunk Sewer	Western	Mill Creek		
Description Lateral from buildings located S of McKinley	Av & E of Euclid Av					
Sewer Route S on Taylor to Clayton Av, E to Boyle, N to I	Duncan then E to trunk	to treatment pl	ant			
SAMPLE POINT NO. 001 Ordinance	NPDI	ES Outfall No.				
Description Flow from W in MH 30' N, 10' W of NE co	orner of building 27 (in	n alleý)				Effective
Discharge Components Process Description	Avg Flow	Unit N	lax Flow	Unit	RUD	Date
Regeneration/Reject WatWater softener regeneration	3,518	GPD		GPD	D	7/18/07
Non Contact Cooling Water	3,250	GPD		GPD	D	7/18/07
Plant & Equipment Washdown	. 468	GPD		GPD	D	7/18/07
Process Waste Photographic & teaching labs	3,851	GPD		GPD	D	7/18/07
Sanitary	. 2,019	GPD		GPD	D	7/18/07
Storm Water	0	GPD		GPD	D	7/18/07
Laboratory Waste Research labs	1,733	GPD		GPD	D	7/18/07
Total Flow Avg =	14,839	Max =				
CONNECTION and SAMPLE POINT INFORMATION						**************************************
LATERAL NO. Lateral Type	DSMH Tr	eatment Area	Bissell	Point		
02 Sanitary Or Combined	19G3 229C	Trunk Sewer		Mill Creek		
·	1705 2270		***************************************	i will Clock		
Description Lateral from buildings N&S of Scott Av & E	of Euclid					
Sewer Route S on Taylor to Clayton Av, E to Boyle, N to I	Duncan then E to trunk	to treatment pl	ant	<i>2</i>		
SAMPLE POINT NO. 005 Ordinance	NPIN	ES Outfall No.				
		es outtain No.				
<b>Description</b> MH 200' W of Taylor Ave. on S side of Sc	ott Ave. in street					Effective
Discharge Components Process Description	Avg Flow	Unit N	lax Flow	Unit	RUD	Date
Regeneration/Reject WatWater softener regeneration	32,761	GPD		GPD	D	7/18/07
Boiler Blowdown	39,666	GPD		GPD	D	7/18/07
Non Contact Cooling Water	88,038	GPD		GPD	D	7/18/07
Plant & Equipment Washdown	. 1,996	GPD		GPD	D	7/18/07
Process Waste Photographic & teaching labs, animal ca	are, etc. 82,658	GPD		GPD '	D	7/18/07
Sanitary	64,878	GPD		GPD	D	7/18/07
Storm Water	. 0	GPD		GPD	D	7/18/07
Laboratory Waste Research labs	22,155			GPD	D	7/18/07
Kitchen Waste	9,176	GPD		CDD		
		O. D		GPD	D	7/18/07
Total Flow Avg =	341,328	Max =		GPD	D	7/18/07
***************************************			2 2	GPD	D	7/18/07
Total Flow Avg =  CONNECTION and SAMPLE POINT INFORMATION  LATERAL NO. Lateral Type	341,328		00000000000000 <u>0</u> 60 <u>0000000</u>	GPD	D	7/18/07
CONNECTION and SAMPLE POINT INFORMATION	341,328	Max =	Lemay	es Peres - Up		7/18/07
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type	<b>DSMH</b> Tr 19G3 543C	Max =	Lemay			7/18/07
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type  Sanitary Or Combined	341,328  DSMH Tr 19G3 543C  o courtyard	Max = reatment Area Trunk Sewer	Lemay			7/18/07
CONNECTION and SAMPLE POINT INFORMATION  LATERAL NO. Lateral Type  03 Sanitary Or Combined  Description Lateral N from Building 14 W of Euclid Av to	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme	Max = reatment Area Trunk Sewer	Lemay			7/18/07
CONNECTION and SAMPLE POINT INFORMATION  LATERAL NO.  03	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme	Max = reatment Area Trunk Sewer	Lemay			
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type  03 Sanitary Or Combined  Description Lateral N from Building 14 W of Euclid Av to Sewer Route W across S Kingshighway Blvd into Forest Proceedings of the Sample Point No. 003 Ordinance	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme	Max = reatment Area Trunk Sewer ent plant ES Outfall No.	Lemay			7/18/07  Effective Date
CONNECTION and SAMPLE POINT INFORMATION  LATERAL NO.  Banitary Or Combined  Description  Lateral N from Building 14 W of Euclid Av to Sewer Route  W across S Kingshighway Blvd into Forest Proceedings of the Sample Point No. 003  Ordinance  Description  Flow from S in MH N of building 14 in driven and several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several several	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme NPDI ive, 6' S of O2 tanks Avg Flow	Max = reatment Area Trunk Sewer ent plant ES Outfall No.	Lemay River d	es Peres - Upp	er ·	Effective
CONNECTION and SAMPLE POINT INFORMATION  LATERAL NO. Lateral Type  03 Sanitary Or Combined  Description Lateral N from Building 14 W of Euclid Av to Sewer Route W across S Kingshighway Blvd into Forest Process Point No. 003 Ordinance  Description Flow from S in MH N of building 14 in driving Discharge Components Process Description	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme NPDI ive, 6' S of O2 tanks Avg Flow 6,120	max = reatment Area Trunk Sewer ent plant ES Outfall No. Unit	Lemay River d	es Peres - Upp	per RUD	Effective Date 7/18/07
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type  03 Sanitary Or Combined  Description Lateral N from Building 14 W of Euclid Av to Sewer Route W across S Kingshighway Blvd into Forest Process Point Flow From S in MH N of building 14 in driving Discharge Components Process Description  Non Contact Cooling Water	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme NPDI ive, 6' S of O2 tanks Avg Flow 6,120 2,179	max = reatment Area Trunk Sewer ent plant ES Outfall No. Unit GPD GPD	Lemay River d	es Peres - Upp Unit GPD	RUD D	Effective Date
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type  03 Sanitary Or Combined  Description Lateral N from Building 14 W of Euclid Av to Sewer Route W across S Kingshighway Blvd into Forest Process Polynomial Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Process Pr	DSMH Tr 19G3 543C o courtyard ark to trunk to treatme NPDI ive, 6' S of O2 tanks Avg Flow 6,120 2,179	max = reatment Area Trunk Sewer ent plant ES Outfall No. Unit M GPD GPD GPD	Lemay River d	es Peres - Upp Unit GPD GPD	RUD D D	Effective Date 7/18/07 7/18/07
CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type  03 Sanitary Or Combined  Description Lateral N from Building 14 W of Euclid Av to Sewer Route W across S Kingshighway Blvd into Forest Processing Flow Flow from S in MH N of building 14 in driving Discharge Components Process Description  Non Contact Cooling Water  Plant & Equipment Washdown  Process Waste Photographic & teaching labs, animal care	341,328  DSMH Tr 19G3 543C  o courtyard  ark to trunk to treatme  NPDI ive, 6' S of O2 tanks  Avg Flow  6,120 2,179  re 11,489 26,187	max = reatment Area Trunk Sewer ent plant ES Outfall No. Unit M GPD GPD GPD	Lemay River d	Unit GPD GPD GPD	RUD D D D	Effective Date 7/18/07 7/18/07 7/18/07

Report No. PIMS012A Data Date & Time:

03/28/2012

03/28/2012

9:07:03 am 9:07:03 am

#### METROPOLITAN ST. LOUIS SEWER DISTRY IAL DATA SHEET - FACILITY INFORM

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL
TNO 5112216200 Premise Address 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

RIMARY MSD A	ACCOUNT NO.	5112216200						St. Louis MC	). 63110	
		Total Flow Avg =		64,103	***************************************	Max =				
	and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o	DINT INFORMATION								
LATERAL NO.	Lateral Typ	ie .	DSMH	Tre	eatment	Area	Bissell I	Point .		
04	Sanitary Or Con	nbined	19G3 2	259C	Trunk	Sewer	Western	Mill Creek		
* Description	8" lateral E from	Building 80 at Taylor and P	arkview to	an unname	d street					
Sewer Route		Duncan, E to trunk to treatr								
SAMPLE POIN	T NO. 006	Ordinance		NPDE	S Outfa	all No.				
Description		y pipe 13' N, 9' E of SE com	er of buildi							
Discharge Com		ess Description		Avg Flow	Unit	Ma	x Flow	Unit	RUD	Effective Date
	-	•		J		1712	X FIOW			
	nt Wash Woose ter stor	age facility			GPD			GPD	D	7/18/07
Sanitary					GPD			GPD	D	7/18/07
Storm Water		777 - 4 - 3 - Y718 4			GPD	3.0		GPD	D	7/18/07
***************************************		Total Flow Avg =	***************************************	1,034		Max =				
		DINT INFORMATION								
LATERAL NO.	Lateral Typ	e	DSMH	Tre	eatment	Area	Bissell I	Point		
05	Sanitary Or Con	nbined	20G2 2	235C	Trunk	Sewer	Western	Mill Creek		
Description	Multiple lines fr	om Bldg 63 N to McKinley								
ewer Route	•	to Taylor, S to Clayton, E to	Boyle, N to	Duncan, th	en E to	trunk to tr	eatment p	lant		
SAMPLE POIN	T NO. 007	Ordinance		NPDF	S Outfa	all No.				
Description		dewalk E of Bldg 63; 111' N	2' E 05 8 E							
•	•	_	, Z E OI SE	conter of b	unuing					Effective
Discharge Comp	ponents Proc	ess Description	A	Avg Flow	Unit	Ma	x Flow	Unit	RUD	Date
Non Contact Cool	ling Water			413	GPD			GPD	D	7/18/07
Plant & Equipmen	nt Washdown			7,462	GPD			GPD	D	7/18/07
Process Waste				5,997	GPD			GPD	D	7/18/07
Sanitary	•			4,798	GPD			GPD	D	7/18/07
Storm Water		· ·		0	GPD			GPD	D	7/18/07
Laboratory Waste	Research I	abs		4,780	GPD			GPD	D	7/18/07
		Total Flow Avg =		23,450		Max =				
CONNECTION	and SAMPLE PO	DINT INFORMATION	*******************************	**************************************				***************************************	***************************************	***************************************
LATERAL NO.	Lateral Typ	e	DSMH	Tre	eatment	Area	Lemay			
06	Sanitary Or Con	nbined	19G3 4	192C	Trunk	Sewer	Euclid			
Description	Line exiting N s	ide of Bldg 4 (425 S. Euclid)	to main on	Children's	Pl				•	
Sewer Route		lg to main on Children's Pl, E				sewer S	alono RDi	P to STP		
		•	1411							
SAMPLE POIN		Ordinance		NPDE	S Outfa	iii No.				
Description	MH in plaza	27' W, 27' N of NE bldg com	er							Effective
Discharge Comp	ponents Proc	ess Description		Avg Flow	Unit	Ma	x Flow	Unit	RUD	Date
Non Contact Cool	ling Water			76,360				GPD	D	2/28/11
Plant & Equipmen	=				GPD			GPD	D	2/28/11
Sanitary				26,404				GPD	D	2/28/11
Storm Water					GPD			GPD	D	2/28/11
Laboratory Waste	Research la	abs		28,259				GPD	D	2/28/11
	- Tonomi off It	Total Flow Avg =		131,850	5. 5	Max =		G. D	υ	2/20/11
CONNECTION	and SAMPLE PO	DINT INFORMATION	<del>100</del> 0000000000000000000000000000000000	- Zingarjaga (1930) gagagan (1931) agizi	000000000000000000000000000000000000000	CCCC minage polygopii (ngo	400000000000000000000000000000000000000	00000000000000000000000000000000000000	000000000000000000000000000000000000000	
LATERAL NO.	Lateral Typ		DSMH	Tre	eatment	Ares	Leman			
07	Sanitary Or Con		19G3 1			Sewer	Lemay Euclid			
	•				* • u !! N	Senei	Eucila			
Description	Line exiting E si	de of Bldg 4 (425 S. Euclid)	to main on	Euclid						
ewer Route	Flow E from bld	g to main on Euclid, E on Ch	ildren's Pl.	across King	gshighw	ay, S to tr	unk along	RDP to STP		
ort No. PIMS012	PA 03/29/2	0.07,02 0.00		~~~~~			***************************************			

Report No. PIMS012A Data Date & Time:

03/28/2012

03/28/2012

9:07:03 am 9:07:03 am

#### PROPOLITAN ST. LOUIS SEWER DISTRI IAL DATA SHEET - FACILITY INFORM ION

PRIMARY MSD ACCOUNT NO.

INDUSTRY NAME WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

SAMPLE POINT NO. 009 Ordinance	NPDES (	<b>p</b>			
Description MH in E plaza 36' N, 27' E of S NE bldg  Discharge Components Process Description	Avg Flow U	nit Max Flow	Unit	RUD	Effective Date
Non Contact Cooling Water	· 76,360 GI	PD	GPD	D	2/28/11
Plant & Equipment Washdown	827 GI	PD	GPD	D	2/28/11
Sanitary	26,404 GI	PD	GPD	D	2/28/11
Storm Water	· 0 GI	PD	GPD	D.	2/28/11
Laboratory Waste	28,259 GI	PD	·GPD	D	2/28/11
Total Flow Avg =	131,850	Max =			

PRETREATMENT TYPES

S	P	EFF_DATE	<b>TYPE</b>	<u>DESCRIPTION</u>
0	01	09/02/1998	DC32	Metallic Replacement
0	03	09/02/1998	DC32	Metallic Replacement
0	03	09/02/1998	DC37	pH Adjustment/Neutralization
0	05	07/17/2007	DC37	pH Adjustment/Neutralization
0	05	07/17/2007	DC32	Metallic Replacement
0	05	06/16/1999	DC28	Grease Trap
0	06	05/08/2001	DC37	pH Adjustment/Neutralization
_0	07.	_07/17/2007	DC37	pH Adjustment/Neutralization

PRIORITY POLLUTANTS

Pollutant Description	Status	Pollutant Description	Status	Pollutant Description	Status
Cyanide (Total)	KP	Asbestos (Fibrous)	KP	Silver (Total)	KP
Selenium (Total)	KP	Copper (Total)	· KP	Cadmium (Total)	SP
Zinc (Total)	KP	Thallium (Total)	KP	Nickel (Total)	KP
Mercury (Total)	KP	Lead (Total)	KP	Chromium (Total)	· KP
Arsenic (Total)	KP	1,2,4-Trichlorobenzene	SP	Phenol	KP
4-Nitrophenol	KP	2,4-Dinitrophenol	SP	2-Chlorophenol	SP
Nitrobenzene	KP	Benzo (A) Pyrene	SP	Benzidine	SP
Acrolein	KP	Toluene	KP	Methylene Chloride	SP.
Chloromethane	SP	Chlorobenzene	KP	1,3-Dichlorobenzene	SP
1,1,1-Trichloroethane	SP	Tetrachloroethene	SP	Chloroform	KP
Carbon Tetrachloride	SP	Bromomethane	SP	Benzene	SP
2-Chloroethyl vinyl ether	SP	1,2-Dichloroethane	SP	1,1,2-Trichloroethane	SP
(cis & trans) 1,3-Dichloropropene	SP	Acenaphthylene	SP	Acenaphthene	SP
4-Chloro-3-Methylphenol	SP	2,4,6-Trichlorophenol	SP	2,4-Dimethylphenol	SP
2,4-Dinitrotoluene	SP	1,2-Diphenylhydrazine	SP	3,3-Dichlorobenzidine	SP
Bis (2-Chloroethoxy) Methane	SP	Anthracene	SP	2,6-Dinitrotoluene	SP
2,4-Dichlorophenol	SP	2-Nitrophenol	SP	Naphthalene	SP
N-Nitrosodimethylamine	SP	Bis (2-Chloroisopropyl) Ether	SP	Bis (2-Chloroethyl) Ether	SP
1,2-Dichloropropane	SP	Trans-1,2-Dichloroethene	SP	Dibromochloromethane	SP
Bromodichloromethane	SP	1,2-Dichlorobenzene	SP	1,1-Dichloroethane	SP
Trichloroethene	KP	Ethylbenzene	SP	Chloroethane	SP
Acrylonitrile	SP	1,4-Dichlorobenzene	SP	1,1,2,2-Tetrachloroethane	SP
1,1-Dichloroethene	SP				<u>.</u>

EXTRA STRENGTH SURCHARGE INFORMATION

Report No. PIMS012A

03/28/2012

9:07:03 am

Data Date & Time:

03/28/2012

9:07:03 am

For Account Number Selected
Located at

PIMS FACILITY CONTACTS
5112216200 WASHINGTON UNIVERSITY MEDICAL CHOO

660 S. Euclid Ave.

St. Louis

MO 63110

Add	ress	Type
-----	------	------

Contact Type	tact Type Contact Name Contact		Contact Title	Phone Type	Number	Ext.
Billing Address						
Billing Contact	Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
Office Mailing Address		-	•		, ,	
Office Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	FAX	(314)362-1095	
Office Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
Premise Address					•	
Field Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	FAX	(314)362-1095	
Field Contact - Primary	Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
Field Contact 1st Alt	Linda	Vishino	Environmental Compliance Officer	OFF	(314)935-7864	

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## PIMS REART OF FIELD SAMPLING REQUIREMENTS WASHINGTON UNIVERSITY MEDICAL SCHOOL

#### Account No Entered 5112216200

SPN	PRE	MISE ADDRESS	CITY	ST	ZIP	
	660 S	S. Euclid Ave.	St. Lou	iis MO	63110	
01 Project Code: Pollutant Group	IM = II Poll Code	PD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date	
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2012	
•	T237000	pH	Once/year	Grab	06/30/2012	
	T247000	Temperature	Once/year	Grab	06/30/2012	
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012	
	Т393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012	
Semi-Volatile Organics - Ba		Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	06/30/2012	
Semi-Volatile Organics - Ac	idsT995000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012	
olatile Organics	Т996000	Volatile Organics	Once/year	Grab	06/30/2012	ı
)03 Project Code:		PD - Company - MSD			E-J D-A-	
Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date	
	1208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2012	•
	T237000	pH	Once/year	Grab	06/30/2012	•
	T247000	Temperature	Once/year	Grab	06/30/2012	!
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012	<u>;</u>
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012	!
Semi-Volatile Organics - Ba	se/NQQ4000	Semi-Volatile Organics - Base/Neutrals	Once/year'	Comp-Time 04 Hrs	06/30/2012	į
Semi-Volatile Organics - Ac	id\$T995000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012	į
olatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2012	r
005 Project Code: Pollutant Group	Poll Code	PD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date	
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2012	<u> </u>
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2012	<u> </u>
	T237000	pН	Once/year	Grab	06/30/2012	<u>}</u>
•	T247000	Temperature	Once/year	Grab	06/30/2012	<u>.</u>
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012	2
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012	)
Semi-Volatile Organics - Ba	se/ <b>NQQA000</b>	Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	06/30/2012	<u>)</u>
Semi-Volatile Organics - Ac	id\$1995000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012	)
Volatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2012	!
)06 Project Code:	· IM= I	PD - Company - MSD		•		
Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date	
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2012	
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2012	
•	T237000	pH 	Once/year	Grab	06/30/2012	
	T247000	Temperature	Once/year	Grab	06/30/2012	<u> </u>
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012	
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012	1
Semi-Volatile Organics - Ba		Semi-Volatile Organics - Base/Neutrals	•	Comp-Time 04 Hrs	06/30/2012	
Semi-Volatile Organics - Ac		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012	
Volatile Organics	, Т996000	Volatile Organics	Once/year	Grab	06/30/2012	
007 Project Code: Pollutant Group	IM= I Poll Code	PD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date	
	~~					
Report No. PIMS067A Data Date & Time	3/28/2012	9:07:46AM	of o			
Jaia Dale & Tille	3/28/2012	9:07:46AM 1	of 2			

## PIMS REART OF FIELD SAMPLING REQUIREMENTS WASHINGTON UNIVERSITY MEDICAL SCHOOL

#### Account No Entered 5112216200

SPN	PRE	MISE ADDRESS	CITY	ST	ZIP
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2012
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2012
	T237000	pН	Once/year	Grab	06/30/2012
	T247000	Temperature	Once/year	Grab	06/30/2012
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
Semi-Volatile Organics - Bas	se/ <b>N094000</b>	Semi-Volatile Organics - Base/Neutrals	•	Comp-Time 04 Hrs	06/30/2012
Semi-Volatile Organics - Ac		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012
Volatile Organics	T996000	Volatile Organics ,	Once/year	Grab	06/30/2012
008 Project Code: Pollutant Group	IM= I Poll Code	PD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T213000	Chemical Oxygen Demand	Once/year	. Comp-Time 04 Hrs	06/30/2012
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2012
	T237000	pН	Once/year	Grab	06/30/2012
	T247000	Temperature	Once/year	Grab	06/30/2012
•	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012
•	T335000	Chromium (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T339000	Copper (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T368000	Lead (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T377000	Nickel (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T403000	Zinc (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
henolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/year	Grab	06/30/2012
emi-Volatile Organics - Bas		Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	
emi-Volatile Organics - Aci		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012
olatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2012 06/30/2012
09 Project Code: Pollutant Group	IM= I Poll Code	PD - Company - MSD Pollutant Description	r.	0 1 7	End Date
ronutant Group	***************************************	•	Frequency	Sample Type	End Date
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2012
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2012
•	T237000	pН	Once/year	Grab	06/30/2012
	T247000	Temperature	Once/year	Grab	06/30/2012
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2012
	T335000	Chromium (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T339000	Copper (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T368000	Lead (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T377000	Nickel (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
	T403000	Zinc (Total)	Once/year	Comp-Time 04 Hrs	06/30/2012
henolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/year	Grab	06/30/2012
emi-Volatile Organics - Bas	e/N994600	Semi-Volatile Organics - Base/Neutrals	-	Comp-Time 04 Hrs	06/30/2012
emi-Volatile Organics - Aci		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2012
olatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2012
<del>-</del>			<b>,</b>	J180	00/30/2012

Report No. PIMSU6/A	3/28/2012	9:07:46AM			
Data Date & Time	3/28/2012	9:07:46AM	2	of	2

#### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

MSD

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

**PART II:** 

5112262-00

Effective:

2/1/2009

Expiration:

12/31/2012

Premise Address: Monitoring Period: 660 South Euclid Ave., St. Louis, MO, 63110 2012

(Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	r		001		003		005		
Dates on Which Samples Were Collect	cted	G: C:	1/23/2012 1/23/2012		1/24/2012 1/24/2012	G: C:	1/23/2012 1/23/2012		
Times at Which Samples Were Collect	cted		8:10 AM 8:10am - 2:43pm		8:35 a.m. 8:35am -4:35 pm		8:00am 8:00 am - 2:35 pm		
		ı	Record Sample	Types	(G,C,M, or E)	And R	esults Below		
PARAMETER	LIMIT	G	grab, C-compo	site, N	/l=measured flo	w, E=	estimated flow		Units
Flow	***	E	14,500	E	64,500	E	340,000		Gal/Day
Biological Oxygen Demand	***	С	71	С	111	С	66		mg/L
Chemical Oxygen Demand	***	С	275	С	442	С	352		mg/L
Total Suspended Solids	***	С	89	С	106	С	84		mg/L
pH	5.5 - 11.5	G	8.61	G	8.72	G	9.83		pH ·
Oil & Grease	200	G	10	G	9	G	13		mg/L
Temperature	60	G	13.3	G	10.6	G	17		Celcius
Silver	0.5	С	ND	С	ND	С	ND	<u> </u> -	mg/L
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You must complete and sign the certification statements on the reverse side.

FEB 0 9 2012

# METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2012

√ (Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

**ANALYTICAL RESULTS OF SELF MONITORING** 

MSD Sample Point Reference Number	er ·		006		007		800		009	
Dates on Which Samples Were Colle	cted	C:	1/23/2012 1/23/2012	G: C:	1/23/2012 1/23/2012	G: C:	1/23/2012 1/23/2012	G: C:	1/23/2012 1/23/2012	
Times at Which Samples Were Collec	cted	•	7:50 AM 7:50am-3:50 pm	R .	8:07 AM 8:07 am - 2:40 pm	G: C:	8:23 AM 8:23 am - 2:51 pm	G: C:	8:18 AM 8:18 am - 2:48 pm	
·		Reco	ord Sample Type	es (G,0	C,M, or E) And F	Result	s Below			
PARAMETER .	LIMIT	·	ab, C-composite	·	neasured flow,	E=esti	mated flow	·		Units
Flow	***	ŀΕ.	950	E	23,500		131,850	<u> </u>	131,850	Gal/Day
Biological Oxygen Demand	****	С	10	С	85		418		152	mg/L
Chemical Oxygen Demand	***	С	72	С	263		905		528	mg/L
Total Suspended Solids	***	С	46	С	111		315		188	mg/L
pH	5.5 - 11.5	G	9.09	G	8.75		8.7		7.12	
Oil & Grease	200	G	5	G	9		10	T	8	mg/L
Temperature	60	G	15	G	15.1		14.8		7	Celcius
Silver	0.5	С	· ND	С	ND		ND ·		0.11	mg/L
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You must complete and sign the certification statements on the reverse side.

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INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

#### PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

#### PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
	Print or type name of signing official: Livi Isringhousen
	Title: Covironmental Compliance Manage Telephone: 362-6735
	Signature:



WASHINGTON UNIVERSITY Campus Box 8229

660 South Euclid Ave. St. Louis, MO 63110

January 31, 2012 Lab No. 12E-0146 Invoice No. 145156 P.O. No. 2915570T Page 1 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 001, 01/23/12, 8:10 AM** 

WASTEWATER COMPOSITE, SP 001, 01/23/12, 8:10 AM - 2:43 PM

Units: mg/L except as noted

ANALYTE	001	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	71	5	5210 B	01/30/12
Chemical Oxygen Demand (C)	275	10	5220 D	01/24/12
Total Suspended Solids (C)	89	5	160.2	01/25/12
pH, S.U. (G)	8.61	***	150.1	01/23/12
Temperature, °C (G)	13.3		170.1	01/23/12
Oil & Grease (G)	10	5	1664	01/24/12
Silver (C)	ND	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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**WASHINGTON UNIVERSITY** Campus Box 8229

660 South Euclid Ave. St. Louis, MO 63110

January 31, 2012 Lab No. 12E-0146 Invoice No. 145156 P.O. No. 2915570T Page 2 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

SAMPLE ID: WASTEWATER GRAB, SP 003, 01/24/12, 8:35 AM

WASTEWATER COMPOSITE, SP. 003, 01/24/12, 8:35 AM - 4:35 PM

Units: mg/L except as noted

ANALYTE	003	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	111	5	5210 B	01/30/12
Chemical Oxygen Demand (C)	442	10	5220 D	01/25/12
Total Suspended Solids (C)	106	5	160.2	01/25/12
pH, S.U. (G)	8.72		150.1 :	01/24/12
Temperature, °C (G)	10.6		170.1	01/24/12
Oil & Grease (G)	9	5	1664	01/24/12
Silver (C)	ND	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

January 31, 2012 Lab No. 12E-0146 Invoice No.145156 P.O. No. 2915570T Page 3 of 7

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID: WASTEWATER GRAB, SP 005, 01/23/12, 8:00 AM** 

WASTEWATER COMPOSITE, SP 005, 01/23/12, 8:00 AM - 2:35 PM

Units: mg/L except as noted

ANALYTE	005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	66	5	5210 B	01/30/12
Chemical Oxygen Demand (C)	352	10	5220 D	01/24/12
Total Suspended Solids (C)	84	5	160.2	01/25/12
pH, S.U. (G)	9.83		150.1	01/23/12
Temperature, °C (G)	17.0		170.1	01/23/12
Oil & Grease (G)	13	5	1664	01/24/12
Silver (C)	ND	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 January 31, 2012 Lab No. 12E-0146 Invoice No. 145156 P.O. No. 2915570T Page 4 of 7

Attention: Livi Isringhausen

**REPORT OF TESTS** 

**SAMPLE ID:** WASTEWATER GRAB, SP 006, 01/23/12, 7:50 AM

WASTEWATER COMPOSITE, SP 006, 01/23/12, 7:50 AM - 3:50 PM

Units: mg/L except as noted

ANALYTE	006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	10	5	5210 B	01/30/12
Chemical Oxygen Demand (C)	72	10	5220 D	01/24/12
Total Suspended Solids (C)	46	5	160.2	01/25/12
pH, S.U. (G)	9.09		150.1	01/23/12
Temperature, °C (G)	14.6	00 to 00 to	170.1	01/23/12
Oil & Grease (G)	5	5	1664	01/24/12
Silver (C)	ND	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

January 31, 2012 Lab No. 12E-0146 Invoice No. 145156 P.O. No. 2915570T Page 5 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 007, 01/23/12, 8:07 AM** 

WASTEWATER COMPOSITE, SP 007, 01/23/12, 8:07 AM - 2:40 PM

Units: mg/L except as noted

ANALYTE	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	85	5	5210 B	01/30/12
Chemical Oxygen Demand (C)	263	10	5220 D	01/24/12
Total Suspended Solids (C)	111	5	160.2	01/25/12
pH, S.U. (G)	8.75	00 tor 00 tor	150.1	01/23/12
Temperature, °C (G)	15.1	***	170.1	01/23/12
Oil & Grease (G)	9	5	1664	01/24/12
Silver (C)	ND	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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FEB 0 9 2012

**DIVISION OF ENVIRONMENTAL COMPLIANCE** 



AN OFFICIAL COPY OF TEST REPORT WILL, HE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LABORATORIES, INC.

SEE REVERSE FOR CONDITIONS.



**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

January 31, 2012 Lab No. 12E-0146 Invoice No. 145156 P.O. No. 2915570T Page 6 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 008, 01/23/12, 8:23 AM** 

WASTEWATER COMPOSITE, SP 008, 01/23/12, 8:23 A.M. - 2:51 PM

Units: mg/L except as noted

ANALYTE	800	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	418	10	5210 B	01/30/12
Chemical Oxygen Demand (C)	905	20	5220 D	01/24/12
Total Suspended Solids (C)	315	5	160.2	01/25/12
pH, S.U. (G)	8.70	400 400 500	150.1	01/23/12
Temperature, °C (G)	14.8	****	170.1	01/23/12
Oil & Grease (G)	10	5	1664	01/24/12
Silver (C)	ND	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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FEB 0 9 2012

DIVISION OF **ENVIRONMENTAL COMPLIANCE** 



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SEE REVERSE FOR CONDITIONS.



**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 January 31, 2012 Lab No. 12E-0146 Invoice No. 145156 P.O. No. 2915570T Page 7 of 7

Attention: Livi Isringhausen

#### REPORT OF TESTS

**SAMPLE ID: WASTEWATER GRAB, SP 009, 01/23/12, 8:18 AM** 

WASTEWATER COMPOSITE, SP. 009, 01/23/12, 8:18 AM - 2:48 PM

Units: mg/L except as noted

ANALYTE	009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	152	5	5210 B	01/30/12
Chemical Oxygen Demand (C)	528	10	5220 D	01/24/12
Total Suspended Solids (C)	188	5	160.2	01/25/12
pH, S.U. (G)	7.12		150.1	01/23/12
Temperature, °C (G)	20.7		170.1	01/23/12
Oil & Grease (G)	8	5	1664	01/24/12
Silver (C)	0.11	0.05	200.7	01/26/12

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

Steve Root, Manager Environmental Testing

SR/krm

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ACIL

# METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

MSD₂-13

PART I:	IDENTIF	YING INFORMATIO	N			
Company Nam	e: Washington	university Medical Sch	ool			
Permit No:	511	2216200	1 -	7.		
Premise Addre	ss: 660 South	Euclid, St. Louis, MO 63	110			
Reporting Perio	od: <b>2011</b>	[] (JAN-MAR)		] (APR-JUN)	[] (JUL-SEP)	X (OCT-DEC)
PART II:	RECORD	OF DISPOSAL OF R	ADIOA	CTIVE MATER	IALS TO THE SEWER	
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S-35						0.1245
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		ATERIALS DISCHA		•		
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Print/Type nam	ne of signing of	ficial: David M Kershma	<u>in</u>			
Title: Radiation	n Safety Specia	list III		Telephone:	(314) 362-2996	Title 1
Signature:	0	1		Date: 01/2:	3/2012	

RECEIVED

RE: radrpt.doc 2/00

JAN 2 5 2012

MSD

1/02

# METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

## PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

5112-2162-00

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Effective:

2/1/2009 Expiration:

12/31/2012

Premise Address: Monitoring Period: 660 South Euclid Ave., St. Louis, MO, 63110

2011

(Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Nu	mber		001 003			T	005	T	<del>Rikaniju projekte konstanten grag u</del>
Dates on Which Samples Were C	ollected	G: C:	10/24/2011	G: C:	10/24/2011	G:	10/24/2011	<del></del>	<b>*************************************</b>
Times at Which Samples Were C	ollected	G: C:	8:31 AM 8:31em - 2:28pm	9:06 a.m. 9:06am -5:06 pm	C: G: C:	10/24/2011 8:22am 8:22am - 2:40 pm	1	Bäddaddiuwwywww.hidyfawny.gogga	
PARAMETER	LIMIT		Record Sample Types (G,C,M, or E) And Results Below G=grab, C-composite, M=measured flow, E=estimated flow						Units
Flow	***	E	14,500	E	64,500	TE	340,000	1	Gal/Day
Biological Oxygen Demand	****	С	46	С	57	c	57		mg/L
Chemical Oxygen Demand	***	С	177	C	140	С	202	1	mg/L
Total Suspended Solids	****	С	47	C	105	C	56	1	mg/L
pH	5.5 - 11.5	G	8.99	G	9.06	G	8.76	†	рН
Oil & Grease	200	G	ND	G	7	G	ND	1	mg/L
Temperature	60	G	23.9	G	21.5	G	23.1	<b>†</b>	Celcius
Silver	0.5	C	< 0.05	С	ND	С	ND		mg/L
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You must complete and sign the certification statements on the reverse side.

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NOV 0 2 2011

# METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2010

(Jan-Mar)

(Apr-June)

(July-Sept)

√ (Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By: PART II:

St. Louis Testing Laboratories
ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Numb	er		006		007		008		009	
Dates on Which Samples Were Coll	orcoccobbaccoccocnnennfibroblig# <u>Ged###</u>		10/25/2011 10/25/2011 8:15 AM	G: C:	10/24/2011 10/24/2011 892/ AM	G:	10/24/2011 10/24/2011	G: C:	10/24/2011 10/24/2011	
Times at Which Samples Were Coll	ected	c:	8:15gm-4:15 pm		0:27 Ann 8:27 am - 2:34 pm	<u></u> -	8:44 am - 2:35 pm	G: C:	8:54 AM 8:54 am - 4:54 pm	
		Record Sample Types (G,C,M, or E) And Results Below						00000000tiidaanayayaytiiniiniiniiniiniinii		
PARAMETER	LIMIT	<u>C-8</u>	G=grab, C-composite, M=measured flow, E=estimated flow							Units
Flow	***	E	950	E	23,500		131,850		131,850	Gal/Day
Biological Oxygen Demand	****	С	25	С	37		514	Г	149	mg/L
Chemical Oxygen Demand	***	С	70	С	176		1130			mg/L
Total Suspended Solids	****	C	13	C	48		430			mg/L
pH	5.5 - 11.5	G	9.19	G	9.14	ŀ	7.72		8.59	A STATE OF THE PERSON NAMED IN COLUMN TWO
Oil & Grease	200	G	ND	G	ND		39		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	mg/L
Temperature	60	G	19	G	24		22.1		25.1	Celcius
Silver	0.5	С	ND	С	ND		ND	Γ	ND	mg/L
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You must complete and sign the certification statements on the reverse side.

## INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

## PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

## PART IV: GENERAL CERTIFICATION STATEMENTS

DISCHARGE MONITORING REPORT CERTIFICATION
All permittees must sign and complete the information below:
I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel property gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.  Print or type name of signing official:
Title: Environmente Complance Hanager Telephone: 362-6735
Signature:

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**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 1 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID: WASTEWATER GRAB, SP 001, 10/24/11, 8:31 AM** 

WASTEWATER COMPOSITE, SP 001, 10/24/11, 8:31 AM - 2:26 PM

Units: mg/L except as noted

ANALYTE	001	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	46	5	5210 B	10/31/11
Chemical Oxygen Demand (C)	177	10	5220 D	10/28/11
Total Suspended Solids (C)	47	5	160.2	10/26/11
pH, S.U. (G)	8.99	***	150.1	10/24/11
Temperature, °C (G)	23.9	AN UP UP TO	170.1	10/24/11
Oil & Grease (G)	ND	5	1664	10/25/11
Silver (C)	ND	0.05	200.7	10/28/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab





**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 2 of 7

#### REPORT OF TESTS

**SAMPLE ID: WASTEWATER GRAB, SP 003, 10/24/11, 9:06 AM** 

WASTEWATER COMPOSITE, SP. 003, 10/24/11, 9:06 AM - 5:06 PM

Units: mg/L except as noted

Times mg/2 oxoopt as noted							
ANALYTE	003	MQL	METHOD NUMBER	DATE OF ANALYSIS			
Biological Oxygen Demand (C)	57	5	5210 B	10/31/11			
Chemical Oxygen Demand (C)	140	10	5220 D	10/28/11			
Total Suspended Solids (C)	105	5	160.2	10/26/11			
pH, S.U. (G)	9.06	******	150.1	10/24/11			
Temperature, °C (G)	21.5	***	170.1	10/24/11			
Oil & Grease (G)	7	5	1664	10/25/11			
Silver (C)	ND	0.05	200.7	10/28/11			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

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**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 3 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 005, 10/24/11, 8:22 AM WASTEWATER COMPOSITE, SP 005, 10/24/11, 8:22 AM – 2:20 PM

Units: mg/L except as noted

ANALYTE	005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	57	5	5210 B	10/31/11
Chemical Oxygen Demand (C)	202	10	5220 D	10/28/11
Total Suspended Solids (C)	56	5	160.2	10/26/11
pH, S.U. (G)	8.76		150.1	10/24/11
Temperature, °C (G)	23.1		170.1	10/24/11
Oil & Grease (G)	ND	5	1664	10/25/11
Silver (C)	ND	0.05	200.7	10/28/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 4 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 006, 10/25/11, 8:15 AM

WASTEWATER COMPOSITE, SP 006, 10/25/11, 8:15 AM - 4:15 PM

Units: mg/L except as noted.

ANALYTE	006	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	25	5	5210 B	10/31/11
Chemical Oxygen Demand (C)	70	10	5220 D	10/28/11
Total Suspended Solids (C)	13	5	160.2	10/26/11
pH, S.U. (G)	9.19	****	150.1	10/25/11
Temperature, °C (G)	18.9		170.1	10/25/11
Oil & Grease (G)	ND	5	1664	10/25/11
Silver (C)	ND	0.05	200.7	10/28/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 5 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 007, 10/24/11, 8:27 AM WASTEWATER COMPOSITE, SP 007, 10/24/11, 8:27 AM – 2:24 PM

. Units: mg/L except as noted

ANALYTE	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	37	5	5210 B	10/31/11
Chemical Oxygen Demand (C)	176	10	5220 D	10/28/11
Total Suspended Solids (C)	48	5	160.2	10/26/11
pH, S.U. (G)	9.14		150.1	10/24/11
Temperature, °C (G)	24.0	us de su di	170.1	10/24/11
Oil & Grease (G)	ND	5	1664	10/25/11
Silver (C)	ND	0.05	200.7	10/28/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab





WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110 November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 6 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 008, 10/24/11, 8:44 AM

WASTEWATER COMPOSITE, SP 008, 10/24/11, 8:44 A.M. - 2:35 PM

Units: mg/L except as noted

ANALYTE	008	MQL	METHOD NUMBER	DATE OF ANALYSIS			
Biological Oxygen Demand (C)	514	5	5210 B	10/31/11			
Chemical Oxygen Demand (C)	1130	10	5220 D	10/28/11			
Total Suspended Solids (C)	430	5	160.2	10/26/11			
pH, S.U. (G)	7.72		150.1	10/24/11			
Temperature, °C (G)	22.1		170.1	10/24/11			
Oil & Grease (G)	39	5	1664	10/25/11			
Silver (C)	ND	0.05	200.7	10/28/11			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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NOV 0 2 2011

DIVISION OF ENVIRONMENTAL COMPLIANCE

MEMBER ACIL

AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LABORATORIES, INC.



**WASHINGTON UNIVERSITY** 

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

November 1, 2011 Lab No. 11E-1912 Invoice No. 141575 P.O. No. 2915857T Page 7 of 7

Attention: Livi Isringhausen

#### **REPORT OF TESTS**

**SAMPLE ID:** WASTEWATER GRAB, SP 009, 10/24/11, 8:54 AM

WASTEWATER COMPOSITE, SP. 009, 10/24/11, 8:54 AM - 4:54 PM

Units: ma/L except as noted

Omo: mgr oxoopt do noto							
ANALYTE	009	MQL	METHOD NUMBER	DATE OF ANALYSIS			
Biological Oxygen Demand (C)	149	5	5210 B	10/31/11			
Chemical Oxygen Demand (C)	298	10	5220 D	10/28/11			
Total Suspended Solids (C)	167	5	160.2	10/26/11			
pH, S.U. (G)	8.59	****	150.1	10/24/11			
Temperature, °C (G)	25.1		170.1	10/24/11			
Oil & Grease (G)	10	5	1664	10/25/11			
Silver (C)	ND	0.05	200.7	10/28/11			

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite (G)-Grab

Steve Root, Manager **Environmental Testing** 

SR/krm



# METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

MSD

5k 10-24

PART I:	IDENTIFYING INFORMA	TION		
Company Nam	ne: Washington University Medical	School		
Permit No:	5112-2162-00	)		
Premise Addre	ess: 660 South Euclid, St. Louis, MO	O 63110		
Reporting Peri	od: <b>2011</b>	(APR-JUN)	(JUL-SEP)	OCT-DEC)
PART II:	RECORD OF DISPOSAL O	OF RADIOACTIVE MATE	ERIALS TO THE SEWER	1
	RADIONUCLIDE	ACTIVITY	DISCHARGED (millicuries)	· ]
C-14			~	0.0700
H-3				9.0490
I-125	·			0.1132
P-32			·	0.3134
S-35				0.1446
	TOTAL ACTIVITY DISCHA	ARGED:		9.6902
Everyone mu	itials in the box under Item A.  Ist complete the information und  TIFICATION OF COMPLIANO		•	
gov	ertify that to the best of my knowled verning disposal by release into sanit ssouri Department of Health, respec	tary sewage for material regula	ited by the Nuclear Regulator	
B. RAD	DIOACTIVE MATERIALS DISC	CHARGE REPORT CERT	FICATION	•
system designed the person or p submitted is to submitting fals	penalty of law that this document are do to assure that qualified personnel persons who manage the system, or to the best of my knowledge and believe information, including the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibility of the possibi	properly gather and evaluate those persons directly responsi ef, true, accurate, and complete ility of fine and imprisonment	the information submitted. Bat ble for gathering the informate. I am aware that there are sign	sed on my inquiry of ion, the information
		<u>, , , , , , , , , , , , , , , , , , , </u>		
Title: Radiatio	n Safety Specialist III	Telepho	one: (3·14) 362-2996	
Signature:	7 1	Date: 10	0/17/2011	

RECEIVED

OCT 2 4 2011

Washington University in St. Louis

WUMS

JAG VIAG

**Environmental Health & Safety** 

5112-2162-00

**Radiation Safety Office** 

October 7, 2011

Douglas M. Mendoza, P.E. Manager of Industrial Pretreatment **Metropolitan St. Louis Sewer District** 10 East Grand Avenue St. Louis, Missouri 63147

RE: Notification of Annual Increase in Aqueous Radioactive Waste Discharge to Sewer: Pursuant to Article VIII, Section Six of Ordinance No. 12559

Dear Mr. Mendoza:

Washington University Medical School expects to discharge approximately 600 mCi of activity to the sanitary sewer during the calendar year of 2011. The release of 600 mCi to the sanitary sewer represents an increase of greater than 20 percent over the last calendar year and therefore requires that the Metropolitan Sewer District be notified in writing. Please accept this letter as notification of our expected disposal.

The 600 millicuries will consist of approximately 550 millicuries of H-3 and the remainder will be a combination of C-14 and multiple other isotopes. Our radioactive materials license issued by the Nuclear Regulatory Commission allows annual limits of up to the following activities; 5,000 mCi H-3, 1,000 mCi C-14 and 1,000 mCi for the remaining isotopes. Even at this year's increased level, Washington University Medical School will be well below these limits.

If you have any questions please feel free to call me at 314.362.2996 or email me at dkershman@wustl.edu. Thank you for your assistance in this matter.

Sincerely,

David M. Kershman, RRPT

**Radiation Safety Specialist** 

Washington University in St. Louis

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OCT 13 2011

DIVISION OF ENVIRONMENTAL COMPLIANCE

Washington University in St. Louis, Campus Box 8053, 660 S. Euclid Avenue, St. Louis, Missouri 63110-1093 (314) 362-3476, Fax (314) 362-4776, radsafety@wustl.edu, http://radsafety.wustl.edu

Washington University Medical School 51/22162-00

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

CB3.

PART I:

**IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

51122162-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2011

(Jan-Mar) (Apr-June)

√ (July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

**PART II:** 

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number	r			001		003		005		
Dates on Which Samples Were Collect	ted	·	G: C:	7/19/2011 7/19/2011	G: C:	7/19/2011 7/19/2011	G: C:	7/19/2011 7/19/2011	60-A-0000000000000000000000000000000000	,
Times at Which Samples Were Collec	ted		G: C:	7:50a.m. 7:50am - 2:50p	G: C:	7:20 a.m. 7:20am - 3:20 g	G: C:	8:05am 8:05 am - 2:45 pr	n '	
			-	Record Sample	Types	s (G,C,M, or E)				
PARAMETER		LIMIT	G	grab, C-compo	site, I	M=measured flo	w, E=	estimated flow	Units	į
Flow	MQL	***	Ę	28,250 /	·Ε	55,500 -	Ε	450,000 /	Gal/Day	y .
Biological Oxygen Demand (C)		***	C	15 /	С	112 /	С	30 /	mg/L	
Chemical Oxygen Demand (C)		***	С	45 /	С	413 /	С	102 ′	mg/L	
Total Suspended Solids (C)		***	C	16 /	С	116 /	С	68 /	mg/L	
pH (Std. pH Units) (G)		5.5 - 11.5	G	8.05 /	G	7.07 /	G	8.22 /	рН	
Temperature, °C (G)		60	_G	31 🖊	G	28 /	G	· 29 /	Celcius	
Oil & Grease (G)	5	200	Ģ	ND ~	Ģ	37 /	G	ND /	mg/L	
Total Cyanide (G)	0.01	0.4	Ç	ND /	С	ND -	С	ND /	mg/L	
Cadmium (C)	0.01	0.7	С	ND 🗸	С	ND /	С	ND -	mg/L	
Chromium (C)	0.01	5	С	0.01 /	С	0.01 /	С	0.03 /	mg/L	
Copper (C)	0.01	2.7	G	0.01 /	G	0.03 /	G	0.02 /	mg/L	
Lead (C)	0.01	0.04	G	0.03 /	G	ND /	G	ND/	mg/L	
Nickel (C)	0.01	2.3	G	ND /	G	0.06 /	G	0.01 /	mg/L	
Selenium (C)	0.01	0.2	С	ND /	С	ND/	С	0.01 🗸	mg/L	
Silver (C)	0.01	0.5	С	ND/	С	0.02	С	ND 🗸	mg/L	
Thallium (C)	0.01	***	С	ND 🗸 .	С	ND /	С	ND /	mg/L	
Zinc (C)	0.01	3	С	0.06 -	С	0.21 ′	С	0.07	mg/L	
Mercury (C)	0.005	0.01	С	ND ,	С	ND	С	ND <	mg/L	

RECEIVED SEP 12 2011

•			001		002		005		•
	Ţ		G:	7/26/2011	G:	7/26/2011	G:	7/26/2011	
5 ⁵	MQL		G:	8:12 AM	G:	8:37 AM	G:	8:03 AM	
1,1,1,-Trichloroethane /	0.005	5.884	G	ND ,	G	ND X	G	ND <	mg/L
1,1,2,2-Tetrachloroethane	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
1,1,2- Trichloroethane /	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
1,1-Dichloroethane	0.005	5.844	G	ND >	G	ND 🗶	G	ND /	mg/L
1,1-Dichloroethene /	0.005	5.844	G	ND /	G	ND X	G	ND /	mg/L
1,2,4-Trichlorobenzene	0.005	5.844	G	ND /	G	ND X	G	ND 🗸	mg/L
1,2- Dichlorobenzene /	0.005	5.844	G	ND /	G	ND _×	G	ND /	mg/L
1,2-Dichloroethane	0.005	5.844	G	ND /	G	ND X	G	ND /	mg/L
1,2- Dichloropropane	0.005	5.844	G	ND /	G	ND 🔀	G	ND /	mg/L
1,3- Dichlorobenzene	0.005	5.844	G	ND ,	G	ND X	G	ND /	mg/L
1,4- Dichlorobenzene /	0.005	5.844	G.	ND /	G	ND X	G	ND /	mg/L
2-Chloroethyl vinyl ether /	0.02	5.844	G	ND 🏏	G	ND X	G	ND /	mg/L
Acrolein	0.1	5.844	G	ND /	G	$ND\chi$	G	ND /	mg/L
Acrylonitrile /	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
Benzene /	0.002	5.844	G	ND 🕹	G	ND _⊀	G	ND /	mg/L
Bromodichloromethane /	0.005	5.844	G	ND /	G	ND X	G	ND /	mg/L
Bromomethane /	0.01	5.844	G	ND /	G	ND X	G	ND /	mg/L
Carbon tetrachloride /	0.005	5.844	G	ND /	G	ND 🗴	G	ND /	mg/L
Chlorobenzene	0.005	5.844	G	ND /	G	ND $\times$	G	ND /	mg/L
Chloroethane /	0.01	5.844	G	ND /	G	ND X	G	ND <	mg/L
Chloroform	0.005	5.844	G	ND /	G	ND X	G	ND /	mg/L
Chloromethane	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
cis-1,3 – Dichloropropene /	0.005	5.844	G	ND _	G	ND $ imes$	G	ND /	mg/L
Dibromochloromethane /	0.005	5.844	G	ND /	G	ND 🛪	G	ND 🗸	mg/L
Ethylbenzene /	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
Methylene chloride /	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
Naphthalene	0.01	5.844	G	ND ?	G	ND χ	G	ND /	mg/L
Nitrobenzene	0.05	5.844	G	ND /	G	ND X	G	ND /	mg/L
Tetrachloroethene	0.005	5.844	G	ND /	G	ND ×	G	ND /	mg/L
Toluene	0.005	5.844	G	ND ^	G	ND 🔀	G	ND /	mg/L
trans-1,2-Dichloroethene	0.005	5.844	G	ND ./	G	ND X	G	ND /	mg/L
trans-1,3-Dichloropropene /	0.005	5.844	G	ND /	G	X. DN	G	ND ∠	mg/L
Trichloroethene . /	0.005	5.844	G	ND /	G	ND ×	G	ND 🗸	mg/L
2,4,6-Trichlorophenol	0.01	5.844	G	ND/	G	ND ×	G	ND /	mg/L
2,4,Dichlorophenol	0.01	5.844	G	ND <	G	ND 🗶	G	ND /	mg/L
2,4-Dimethylphenol	0.01	5.844	G	ND /	G	ND ×	G	ND /	mg/L
2,4-Dinitrophenol	0.02	5.844	G	ND 🗸	G	ND. 乀	G	ND /	mg/L
2,4-Dinitrotoluene	0.01	5.844	G	ND /	G	ND x	G	ND <	mg/L
2,6-Dinitrotoluene /	0.01	5.844	G	ND /	G	ND ×	G	ND /	mg/L
2-Chlorophenol	0.01	5.844	G	ND /	G	ND ×	G	ND /	mg/L
2-Nitrophenol	0.02	5.844	G	ND /	G	ND X	G	ND /	mg/L
3,3-Dichlorobenzidine	0.01	5.844	G	ND /	G	ND 🗶	G	ND /	mg/L
4-Chloro-3-methylphenol	0.02	5.844	G	ND /	G	ND X	G	ND /	mg/L
4-Nitrophenol	0.02	5.844	G	ND /	G	ND X	G	ND /	mg/L
Acenaphthene /	0.01	5.844	G	ND /	G	ND X	G	ND -	mg/L
Acenaphthylene /	0.01	5.844	G	ND /	G	ND X	G	ND -	mg/L
Anthracene /	0.01	5.844	G	ND /	G	ND X	G	ND /	mg/L
Azobenzene 1,2- Dizhenylk ydrazine	0.01	5.844	Ğ	ND /	G	ND X	Ğ	ND /	mg/L
Benzidine	0.041	5.844	Ğ	ND /	Ğ	ND X	Ğ	ND /	mg/L
Benzo(a)pyrene	0.01	5.844	G	ND /	Ğ	ND X	G	ND /	mg/L
Bis(2-chloroethoxy)methane	0.01	5.844	Ğ	ND /	Ğ	ND X	Ğ	ND /	mg/L
Bis(2-chloroethyl)ether	0.01	5.844	Ğ	ND /	Ğ	ND X	G	ND /	mg/L
Bis(2-chloroisopropyl)ether	0.01	5.844	G	ND /	G	ND X	G	ND /	mg/L
N-Nitrosodimethylamine /	0.01	5.844	G	ND C	G	ND X	G	ND /	mg/L
Phenol	0.005	5.844	G	ND.	G	ND ×	G	ND /	mg/L
	0.000	U.UTT	<u> </u>		<u> </u>	110 1		140 -	13, -

You must complete and sign the certification statements on the reverse side.

## METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

#### PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I: **IDENTIFYING INFORMATION** 

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2011 (Jan-Mar)

(Apr-June)

√ (July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By: St. Louis Testing Laboratories St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number				006		007		800		009		
Dates on Which Samples Were Collected			G: C:	7/19/2011 7/19/2011	G: C:	7/19/2011 7/19/2011	G: C:	7/19/2011 7/19/2011	G: C:	7/19/2011 7/19/2011		
Times at Which Samples We	ere Co	llected	G: C:	10:00 AM 10:00 AM - 6:00 PM	G: C:	7:52 AM 7:55 AM-2:45PM	G: C:	7:40 AM 7:40 AM-2:55PM	G: C:	7:28 AM 7:30 AM-3:30PM		
			Reco	ord Sample Types	(G,C,	M, or E) And Re	sults	Below	<u> </u>		٦	
PARAMETER			G=gi	ab, C-composite,	M=m	easured flow, E	estin=	ated flow			ſ	Units
Flow	MQL	LIMIT	E	24,000	E	8,900	Ε	132,000	E	132,000	П	Gal/Day
Biological Oxygen Demand	(C)	5 ****	С	ND	С	11	C	184	С	62		mg/L
Chemical Oxygen Demand (	(C)	****	С	45	С	33	С	476	С	252		mg/L
Total Suspended Solids (C)		5 ****	С	ND	С	12	С	250	С	26	П	mg/L
pH.(Std. pH Units) (G)		5.5 - 11.5	G	8.76	G	8.48	G	8.04	G	8.00	П	pН
Temperature, °C (G)		60	G	31	G	29	G	28	G	25	П	Celcius
Oil & Grease (G)	5	- 200	G	ND	G	ND	G	6	G	NĎ	П	mg/L
Total Cyanide (G)	0.01	0.4	С	ND	С	ND	С	ND	С	ND	П	mg/L
Cadmium (C)	0.01	0.7	С	ND	С	ND	С	ND	С	ND	П	mg/L
Chromium (C)	0.01	- 5	С	0.02	С	0.03	С	0.03	С	. 0.03	П	mg/L
Copper (C)	0.01	2.7	G	0.01	G	0.01	G	0.02	G	0.02	П	mg/L
Lead (C)	0.01	0.04	G	0.01	G	ND	G	ND	G	ND		mg/L
Nickel (C)	0.01	2.3	G	0.01	G	0.01	G	0.01	G	ND	П	mg/L
Selenium (C)	0.01	0.2	С	ND	С	ND	С	0.01	С	0.01		mg/L
Silver (C)	0.01	0.5	С	ND	С	ND	С	ND	С	0.04		mg/L
Thallium (C)	0.01	***	С	ND	С	ND	С	ND	С	ND		mg/L
Zinc (C)	0.01	3	С	0.04	С	0.06	С	0.10	С	0.11		mg/L
Mercury (C)	0.005	0.01	С	ND	С	ND	С	ND	С	ND		mg/L

* GR 008 + 009 per pe u/ 1. Isking hausen on 9-14-11. Sk

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SEP 1 2 2011

No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.   No.					^^^	T 007		000		000		1
1,1,1,1-finchloroethane						007				<u> </u>		
1.1.1.richloroethane		IMOL	1			L						
1.1.2.2-Fetachicorethane	1 1 1 -Trichlomethane	<del></del>	5 884		·····		~~~~	<u> </u>		·		ma/L
1.12_Finchioroethane				_		4	<u> </u>	<u> </u>	<u> </u>		<u> </u>	
1-1-Dichtoroethane		·			Annual Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the		A		<b>3</b>			THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OWNER, THE OW
1.1-Dichloroentene		<b></b>			<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>		
12.4-Trichlorobenzene	Sononno contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra della contra del		·	<u> </u>	\$	4	\$000000000000000000000000000000000000	å		Annual Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contrac	I	
1.2 Dichlorobenzene		<del></del>			<u> </u>	A	A	<u></u>	A	A		
12-Dichloroethane				4	<u> </u>	4	<del>}</del>		<u> </u>			
12-Dichloropropane				<u> </u>	·	<u></u>	&	<u> </u>	<u> </u>	A		
1.3 Dichlorobenzene		+			<u> </u>		<u> </u>					
1.4 Dichlorobenzene		i				<u> </u>		<u> </u>	<u> </u>	I		
2-Chloroethyl vinyl ether		·		<u> </u>		4	******************************	<u> </u>	2	å		
Acrylonitrile		-			<u> </u>	A	<u> </u>	<u> </u>	<u> </u>	1		
Actylonitrile		<del></del>			<u> </u>	4				L	Annual Property and the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Property of the Proper	
Benzene		<del></del>			<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>	L	
Bromodichloromethane		<del></del>		À			A					
Brommethane	<b>\$</b>	-		· Announcement			<u> </u>	1	L			
Carbon tetrachloride         0.005         5.844         G         ND ✓         G	<u> </u>				<u> </u>	<u> </u>	<u> </u>		&i	L		
Chlorobenzene	<u> </u>	<del></del>		A	<u> </u>	<u> </u>	<u> </u>	A	<u> </u>	A		***************************************
Chloroethane         0.010         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G<	<b></b>	<del></del>			<u></u>	<u> </u>	ļ	2	<u> </u>			
Chloroform		<del></del>			<u> </u>	<u> </u>	A		å			
Chloromethane		<del></del>			<u> </u>	1	<u> </u>	<u> </u>	<u> </u>			***************************************
cis-1,3 – Dichloropropene         0.005         5.844         G         ND /         G		<b></b>				A	<u> </u>	A	<u> </u>		L	
Dibromochloromethane		*	**********************		\$	L			&		bannanananananananananananananan-b	
Ethylbenzene		<del></del>				<u> </u>		A				<del>7</del>
Methylene chloride						<u> </u>		G	<u> </u>	<u></u>	ND /	
Naphthalene		<b></b>	5.844		<u> </u>	G	ND /	G	ND /	G	ND /	
Nitrobenzene		0.010		G	ND /	G	ND /	G	ND /	G	ND /	
Tetrachloroethene	Nitrobenzene	0.050	5.844	G	ND /	G	ND /	G	ND /	G	ND /	
Toluene 0.005 5.844 G ND / G ND / G ND / G ND / G ND / mg/L trans-1,2-Dichloroethene 0.005 5.844 G ND / G ND / G ND / G ND / G ND / mg/L trans-1,3-Dichloropropene 0.005 5.844 G ND / G ND / G ND / G ND / mg/L trans-1,3-Dichloropropene 0.005 5.844 G ND / G ND / G ND / G ND / mg/L 7.4,6-Trichloroethene 0.005 5.844 G ND / G ND / G ND / G ND / mg/L 2,4,6-Trichlorophenol 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,4-Dichlorophenol 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,4-Dimethylphenol 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,4-Dinitrophenol 0.010 5.844 G ND / G ND / G ND / G ND / G ND / mg/L 2,4-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / G ND / mg/L 2,4-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / G ND / mg/L 2,6-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / G ND / mg/L 2,0-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,0-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,0-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,0-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,0-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 2,0-Dinitrotoluene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L 3,3-Dichlorobenzidine 0.020 5.844 G ND / G ND / G ND / G ND / mg/L 4-Nitrophenol 0.020 5.844 G ND / G ND / G ND / G ND / mg/L 4-Nitrophenol 0.020 5.844 G ND / G ND / G ND / G ND / mg/L Acenaphthene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Acenaphthylene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Acenaphthylene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Acenaphthylene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Acenaphthylene 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Benzidine 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Benzidine 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Benzidine 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Benzidine 0.010 5.844 G ND / G ND / G ND / G ND / mg/L Benzidine 0.010 5.844 G ND / G ND / G ND / G ND / G ND / mg/L Benzidine 0.010 5.844 G ND / G ND / G ND / G ND / G ND / mg/L Benzidine	Tetrachloroethene	0.005	5.844	G	ND /	G	ND /	G	ND /	G	ND /	
trans-1,2-Dichloroethene 0.005 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L trans-1,3-Dichloropropene 0.005 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 7.61-Dichloropropene 0.005 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4,6-Trichlorophenol 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinterophenol 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinterophenol 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinterophenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinitrophenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinitrotoluene 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinitrotoluene 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinitrotoluene 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2,4-Dinitrotoluene 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2-Dichlorophenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2-Dichlorophenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 2-Dichlorobenzidine 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 3,3-Dichlorobenzidine 0.010 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylphenol 0.020 5.844 G ND ✓ G ND ✓ G ND ✓ G ND ✓ G ND ✓ Mg/L 4-Dinor-3-methylph	Toluene	0.005	5.844	G	ND /	G	ND /	G	ND /	G	ND /	
trans-1,3-Dichloropropene         0.005         5.844         G         ND /         G         ND /         G         ND /         G         ND /         mg/L           2,4,6-Trichlorophenol         0.010         5.844         G         ND /         mg/L           2,4-Dichlorophenol         0.010         5.844         G         ND /         G </td <td>trans-1,2-Dichloroethene</td> <td>0.005</td> <td>5.844</td> <td>G</td> <td>ND /</td> <td>G</td> <td>ND /</td> <td>G</td> <td>ND /</td> <td>G</td> <td>ND /</td> <td>***************************************</td>	trans-1,2-Dichloroethene	0.005	5.844	G	ND /	G	ND /	G	ND /	G	ND /	***************************************
Trichloroethene	trans-1,3-Dichloropropene	0.005	5.844	G	ND/	G	ND /	G	ND/	G	ND/	
2,4,6-Trichlorophenol         0.010         5.844         G         ND -         G	Trichloroethene	0.005	5.844	G	ND /	G	ND	G	ND /	G	ND /	
2,4-Dimethylphenol         0.010         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND	2,4,6-Trichlorophenol	0.010	5.844	G	ND -	G	ND /	G	ND /	G	ND /	
2,4-Dinitrophenol         0.020         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND	2,4,Dichlorophenol	0.010	5.844	G	. ND /	G	ND /	G	ND /	G	ND /	mg/L
2,4-Dinitrotoluene         0.010         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND	2,4-Dimethylphenol	0.010	5.844	G	ND /	G	ND /	G	ND /	G	ND /	mg/L
2,6-Dinitrotoluene         0.010         5.844         G         ND /         G	2,4-Dinitrophenol	0.020	5.844	G	ND ′	G	ND ,	G	ND /	G	ND /	mg/L
2-Chlorophenol         0.010         5.844         G         ND /         mg/L           2-Nitrophenol         0.020         5.844         G         ND /         G         ND /         G         ND /         G         ND /         mg/L           3,3-Dichlorobenzidine         0.010         5.844         G         ND /         G         ND /         G         ND /         G         ND /         MD /         G         ND /         G         ND /         MD /         G         ND /         MD /         G         ND /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /         MD /	2,4-Dinitrotoluene	0.010	5.844	G	ND ′	G	ND /	G	ND /	G	ND /	mg/L
2-Nitrophenol         0.020         5.844         G         ND /         G         ND /         G         ND /         mg/L           3,3-Dichlorobenzidine         0.010         5.844         G         ND /         G         ND /         G         ND /         G         ND /         mg/L           4-Chloro-3-methylphenol         0.020         5.844         G         ND /         G	2,6-Dinitrotoluene	0.010	5.844	G	ND /	G	ND /	G	ND /	G	ND /	mg/L
3,3-Dichlorobenzidine         0.010         5.844         G         ND / G         ND / G         ND / G         ND / MD / MD / MD / MD / MD / MD / MD /	2-Chlorophenol	0.010	5.844	G	ND /	G	ND /	G	ND /	G	ND /	mg/L
4-Chloro-3-methylphenol         0.020         5.844         G         ND / G         ND / G         ND / G         ND / MD / MD / MD / MD / MD / MD / MD /	1	0.020	5.844	G	ND /	G	ND -	G	ND/	G	ND/	mg/L
4-Nitrophenol         0.020         5.844         G         ND /         G	3,3-Dichlorobenzidine	0.010	5.844	G	ND 🗸	G	ND /	G	ND/	G	ND /	mg/L
Acenaphthene         0.010         5.844         G         ND /         G         N	4-Chloro-3-methylphenol	0.020	5.844	G	ND /	G	ND /	G	ND /	G	ND/	mg/L
Acenaphthylene         0.010         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G	4-Nitrophenol	0.020	5.844	G	ND /		ND /		ND /	G	ND:/	mg/L
Anthracene         0.010         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G <td>Acenaphthene</td> <td>0.010</td> <td>5.844</td> <td></td> <td>ND /</td> <td><u> </u></td> <td>ND /</td> <td><u> </u></td> <td>ND /</td> <td>G</td> <td>ND /</td> <td>mg/L</td>	Acenaphthene	0.010	5.844		ND /	<u> </u>	ND /	<u> </u>	ND /	G	ND /	mg/L
Azobenzene         I,2-Diphenyl hydrox         Q010         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G <t< td=""><td><b></b></td><td>0.010</td><td></td><td>4</td><td></td><td>L</td><td>ånne samer seden stillen nebennen seden sider i</td><td>A</td><td>ND /</td><td>lana and the same of</td><td>ND /</td><td>mg/L</td></t<>	<b></b>	0.010		4		L	ånne samer seden stillen nebennen seden sider i	A	ND /	lana and the same of	ND /	mg/L
Benzidine         0.041         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G		0.010		<u> </u>			<u> </u>				ND /	mg/L
Benzidine         0.041         5.844         G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G         ND / G	Azobenzene (2.Diphenyl hydra	.0.010		A		<u></u>	***************************************					THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED TO THE RESERVED T
Bis(2-chloroethoxy)methane         0.010         5.844         G         ND /         G	Benzidine ' '	0.041		dan married	water the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of							mg/L
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You must complete and sign the certification statements on the reverse side.

INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

#### PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

### PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.  Print or type name of signing official:
	Title: Environmental Confliance Manager Telephone: 314-362-6735
	Signature:
L	

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# METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

GR

MSD

PART I:	IDENTIFYIN	G INFORMATION	<b>N</b>			_
Company Name:	Washington Un	iversity Medical Scho	ol	_	<u>.</u>	
Permit No:	5112-2	1162-00				
Premise Address	: 660 South Eucli	id, St. Louis, MO 631	10			
Reporting Period	: 2011 [	JAN-MAR)	X (AP	R-JUN)	[] (JUL-SEP)	OCT-DEC)
PART II:	RECORD OF	DISPOSAL OF R	ADIOACTIV	E MATERI	ALS TO THE SEWER	
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I-125						0.0461
Ni-63						0.8800
P-32						0.6791
S-35						0.0951
	TOTAL ACTI	VITY DISCHARGE	D:			55.3226
Everyone must A. CERTI	FICATION OF	formation under It	TTH STATE	AND FEDE	RAL REGULATIONS	CSP Part 20 10 000
gover	ning disposal by	elease into sanitary se	ewage for mate	erial regulated	OCFR Part 20.2003 and 19 by the Nuclear Regulatory od covered by this report.	
B. RADIO	DACTIVE MAT	ERIALS DISCHA	RGE REPOR	T CERTIFIC	CATION	
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Print/I ype name	or signing officia	l: David M Kershma	.n	M0000000000000000000000000000000000000		
Title: Radiation S	Safety Specialist I	П		Telephone:	(314) 362-2996	
Signature:		K		Date: <u>07/18</u>	3/2011	RE: radrpt.doc 2/00
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JUL 2 1 2011

### METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

# PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

**IDENTIFYING INFORMATION** 

51122162-00

Company Name:

Washington University School of Medicine

Permit No:

<u>5112262-00</u>-

Effective:

2/1/2009

Expiration:

12/31/2012

Premise Address: Monitoring Period:

660 South Euclid Ave., St. Louis, MO, 63110

Samples Collected By:

2011

(Jan-Mar) V (Apr-June)

(July-Sept)

(Oct-Dec)

Analysis Performed By:

St. Louis Testing Laboratories St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Num	ber	Π	001	T .	003	T	005	T	
Dates on Which Samples Were Col	lected	G: C:	4/18/2011 4/18/2011	G: C:	4/18/2011 4/18/2011	G:  C:	4/18/2011		ST-Salidateuruming-traggerantstagegeed
Times at Which Samples Were Collected		G: C:	7:55 AM 7:55am - 2:40pm	G:	7:15 a.m. 7:20am -3:00 pm	G:	4/18/2011 8:05am 8:05 am - 2:30 pm	<u> </u>	re-dunuduumumukilg- <u>(ènnggan-ga)</u>
PARAMETER	LIMIT		Record Sample G=grab, C-comp	s (G,C,M, or E) M=measured flo			Units		
Flow	***	E	14,500	ΙĒ	84,500	ĪΕ	340,000	<u> </u>	Gal/Day
Biological Oxygen Demand	. ****	С	40	C	202	c	79	<u> </u>	mg/L
Chemical Oxygen Demand	***	С	100	C	362	C	361	T	mg/L
Total Suspended Solids	****	С	61	С	70	С	126		mg/L
рН	5.5 - 11.5	G	7.2	G	6.76	G	7.16	<u> </u>	pH
Oil & Grease	200	G	ND	G	ND	G	8	╅	mg/L
Temperature	60	G	21	G	19	G	23	╅	Celcius
Silver	0.5	С	0.07	С	0.07	С	ND		mg/L
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You must complete and sign the certification statements on the reverse side.

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2010

(Jan-Mar) √ (Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By: Analysis Performed By:

2 , 3

St. Louis Testing Laboratories
St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number			008 007			T	800	T	009		NOTHINGS.
Dates on Which Samples Were Collected			4/18/2011 4/18/2011	G: C:	4/18/2011 4/18/2011	G: C:	4/20/2011 4/20/2011	G: C:	4/20/2011 4/20/2011		
Times at Which Samples Were Colle		8:10 AM	G:	7:45 AM 7:45 em - 2:35 pm	G:	8:35 AM 8:35 em - 2:50 pm	G: C:	8:15 AM 8:15 em - 243 pm			
PARAMETER	LIMIT	8	Record Sample Types (G,C,M, or E) And Results Below Gegrab, C-composite, M=measured flow, E=estimated flow							Units	-
Flow	***	E	950	E	23,500		131,850	<u> </u>	131,850	Gal/Day	!
Biological Oxygen Demand	***	C	22	<u>c</u>	41		174		122	mg/L	******
Chemical Oxygen Demand	****	C	110	С	88		399			mg/L	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Total Suspended Solids	****	C	37	С	63		207		- Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna - Anna	mg/L	************
pH	-5.5 - 11.5	.G	7.44	G	7.15		8.23		8.34		-
Oil & Grease	200	G	2	G	ND		15	┖		mg/L	
Temperature	60	G	18	G	22	1	21	1		Celcius	
Silver	0.5	C	ND	C	0.05		ND		ND	mg/L	1000001
											ninkenna Noncoppi Innanco Innanco Innanco Innanco Innanco Innanco
	9370-57370-57-97-(Parent-coscoccoccoccocco										- Change

You must complete and sign the certification statements on the reverse side.

INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

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PART IV: GENERAL CERTIFICATION STATEMENTS

8	DISCHARGE MONITORING REPORT CERTIFICATION	\bot
	All permittees must sign and complete the lafe-model or heles.	
	All permittees must sign and complete the Information below: I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting fall information, including the possibility of fine and imprisonment for knowing violations.	e
	Print or type name of signing official: M. Olivia Joringhousen Title: Environmenta Constitute Manager Telephone: 314-362-6735	
	Signature:Date:	-

2

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> May 2, 2011 Lab No. 11E-0621 Invoice No. 133877 Page 1 of 3

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave.

St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 4/18/11, 7:55 A.M.

WASTEWATER COMPOSITE, SP 001, 4/18/11, 7:55 A.M. – 2:40 P.M. WASTEWATER GRAB, SP 003, 4/18/11, 7:15 A.M. WASTEWATER COMPOSITE, SP 003, 4/18/11, 7:20 A.M. – 3:00 P.M. WASTEWATER GRAB, SP 005, 4/18/11, 8:05 A.M. – 3:20 P.M. WASTEWATER COMPOSITE, SP 005, 4/18/14, 8:05 A.M. – 3:20 P.M.

WASTEWATER COMPOSITE, SP 005, 4/18/11, 8:05 A.M. - 2:30 P.M.

WASTEWATER GRAB, SP 006, 4/18/11, 8:10 A.M.

WASTEWATER COMPOSITE, SP 006, 4/18/11, 8:15 A.M. - 3:15 P.M

WASTEWATER COMPOSITE, SP 000, 4/16/11, 6.15 A.M. – 3.15 P.M. WASTEWATER GRAB, SP 007, 4/18/11, 7:45 A.M. WASTEWATER COMPOSITE, SP 007, 4/18/11, 7:45 A.M. – 2:35 P.M. WASTEWATER GRAB, SP 008, 4/20/11, 8:35 A.M. WASTEWATER COMPOSITE, SP @ 1/4/20/11, 8:35 A.M. – 2:50 P.M. WASTEWATER GRAB, SP 009, 4/20/11, 8:15 A.M.

WASTEWATER COMPOSITE, SP. 693, 4/20/11, 8:15 A.M. - 2:43 P.M.

Units: mg/L Except As Noted

ANALYTE	001	003	005	MQL	METHOD NUMBER	DATE OF ANALYSIS				
Biological Oxygen Demand (C)	40	202	79	5	5210 B	4/25/11				
Chemical Oxygen Demand (C)	100	362	361	10	5220 D	4/27/11				
Total Suspended Solids (C)	61	70	126	5	160.2	4/25/11				
pH (Std. pH Units) (G)	7.20	6.76	7.16		150.1	4/18/11				
Temperature, °C (G)	21	19	23		170.1	. 4/18/11				
Oil & Grease (G)	ND	ND	6	5	1664	4/28/11				
Silver (C)	0.07	0.07	ND	0.05	200.7	4/22/11				

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

1.

(C)-Composite

(G)-Grab





WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

May 2, 2011 Lab No. 11E-0621 Invoice No. 133877 Page 2 of 3

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 4/18/11, 7:55 A.M.

WASTEWATER GRAB, SP 001, 4/16/11, 7:55 A.M. — 2:40 P.M. WASTEWATER COMPOSITE, SP 001, 4/18/11, 7:55 A.M. — 2:40 P.M. WASTEWATER GRAB, SP 003, 4/18/11, 7:15 A.M. WASTEWATER COMPOSITE, SP. 003, 4/18/11, 7:20 A.M. — 3:00 P.M. WASTEWATER COMPOSITE, SP 005, 4/18/11, 8:05 A.M. — 2:30 P.M. WASTEWATER GRAB, SP 006, 4/18/11, 8:10 A.M. — 2:45 P.M. WASTEWATER GRAB, SP 006, 4/18/11, 8:10 A.M. — 2:45 P.M. WASTEWATER GRAB, SP 006, 4/18/11, 8:10 A.M. — 2:45 P.M.

WASTEWATER COMPOSITE, SP 006, 4/18/11, 8:15 A.M. - 3:15 P.M

WASTEWATER GRAB, SP 007, 4/18/11, 7:45 A.M.
WASTEWATER COMPOSITE, SP 007, 4/18/11, 7:45 A.M.
WASTEWATER COMPOSITE, SP 007, 4/18/11, 7:45 A.M. – 2:35 P.M
WASTEWATER GRAB, SP 008, 4/20/11, 8:35 A.M.
WASTEWATER GRAB, SP 009, 4/20/11, 8:15 A.M.
WASTEWATER GRAB, SP 009, 4/20/11, 8:15 A.M.

WASTEWATER COMPOSITE, SP. 663, 4/20/11, 8:15 A.M. - 2:43 P.M.

Units: mg/L Except As Noted

ANALYTE	006	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	22	41	5	5210 B	4/25/11
Chemical Oxygen Demand (C)	110	88	10	5220 D	4/27/11
Total Suspended Solids (C)	37	63	5	160.2	4/26/11
pH (Std. pH Units) (G)	7.44	7.15	****	150.1	4/18/11
Temperature, °C (G)	18	22		170.1	4/18/11
Oil & Grease (G)	2	ND	5	1664	4/28/11
Silver (C)	ND	0.05	0.05	200.7	4/22/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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DIVISION OF ENVIRONMENTAL COMPLIANCE



AN OFFICIAL COPY OF TEST REPORT WILL HE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LABORATORIES, INC.

SEE REVERSE FOR CONDITIONS.



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

WASHINGTON UNIVERSITY

Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

May 2, 2011 Lab No. 11E-0621 Invoice No. 133877 Page 3 of 3

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 4/18/11, 7:55 A.M.
WASTEWATER COMPOSITE, SP 001, 4/18/11, 7:55 A.M. – 2:40 P.M.
WASTEWATER GRAB, SP 003, 4/18/11, 7:15 A.M.
WASTEWATER COMPOSITE, SP. 003, 4/18/11, 7:20 A.M. – 3:00 P.M.
WASTEWATER GRAB, SP 005, 4/18/11, 8:05 A.M.

WASTEWATER COMPOSITE, SP 005, 4/18/11, 8:05 A.M. – 2:30 P.M. WASTEWATER GRAB, SP 006, 4/18/11, 8:10 A.M.

WASTEWATER COMPOSITE, SP 006, 4/18/11, 8:15 A.M. - 3:15 P.M

WASTEWATER COMPOSITE, SF 000, 4/16/11, 7:45 A.M. = 3:13 F.M WASTEWATER GRAB, SP 007, 4/18/11, 7:45 A.M. = 2:35 P.M WASTEWATER GRAB, SP 008, 4/20/11, 8:35 A.M. WASTEWATER COMPOSITE, SP-004, 4/20/11, 8:35 A.M. = 2:50 P.M. WASTEWATER GRAB, SP 009, 4/20/11, 8:15 A.M. = 2:43 P.M. WASTEWATER GRAB, SP 009, 4/20/11, 8:15 A.M.

WASTEWATER COMPOSITE, SP. 869, 4/20/11, 8:15 A.M. – 2:43 P.M.

Units: mg/L Except As Noted

ANALYTE	008	009	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	174	122	5	5210 B	4/25/11
Chemical Oxygen Demand (C)	399	610	10	5220 D	4/27/11
Total Suspended Solids (C)	207	299	5	160.2	4/25/11
pH (Std. pH Units) (G)	8.23	8.34	AL 400 AM	150.1	4/18/11
Temperature, °C (G)	21	23	****	170.1	4/18/11
Oil & Grease (G)	15	6	5	1664	4/28/11
Silver (C)	ND	ND	0.05	200.7	4/22/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

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(C)-Composite (G)-Grab

Steve Root, Manager **Environmental Testing**

SR/krm



METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT



PART I: IDENTIFYING INFORMATION		
Company Name: Washington University Medical School		
Permit No: 5112-2162-00		
Premise Address: 660 South Euclid, St. Louis, MO 63110	<u> </u>	
Reporting Period: 2011 X (JAN-MAR)] (APR-JUN) [(JUL-SEP)	OCT-DEC
PART II: RECORD OF DISPOSAL OF RADIO	ACTIVE MATERIALS TO THE SEWER	
RADIONUCLIDE	ACTIVITY DISCHARGED (millicuries)	,
C-14		1.8180
H-3		66.7765
I-125		0.2263
P-32 ·		0.6005
S-35		0.0681
TOTAL ACTIVITY DISCHARGED:		69.4893
PART III: CERTIFICATION STATEMENTS		
Place your initials in the box under Item A. Everyone must complete the information under Items A	& B and sign this report.	
A. CERTIFICATION OF COMPLIANCE WITH S	TATE AND FEDERAL REGULATIONS	
I certify that to the best of my knowledge & belief, governing disposal by release into sanitary sewage Missouri Department of Health, respectively, have	for material regulated by the Nuclear Regulatory C been met for the period covered by this report.	
B. RADIOACTIVE MATERIALS DISCHARGE F	REPORT CERTIFICATION	
I certify under penalty of law that this document and all atachr system designed to assure that qualified personnel properly ga the person or persons who manage the system, or those person submitted is to the best of my knowledge and belief, true, accu submitting false information, including the possibility of fine a	ther and evaluate the information submitted. Based as directly responsible for gathering the information trate, and complete. I am aware that there are signi	d on my inquiry of n, the information
Print/Type name of signing official: David M Kershman		
Title: Radiation Safety Specialist III	Telephone: (314) 362-2996	1

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RE: radrpt.doc 2/00

APR 2 2 2011



Metropolitan St. Louis Sewer District

Division of Environmental Compliance 10 East Grand Avenue St. Louis, MO 63147-2913 Phone: 314.768.6200 www.stlmsd.com

April 12, 2011

Livi Isringhausen
Environmental Compliance Manager
WASHINGTON UNIVERSITY MEDICAL SCHOOL
660 South Euclid
Campus Box 8229
St. Louis, MO 63110

RE: DISCHARGE APPROVAL - WASTEWATER DISCHARGE PERMIT NO. 5112216200

For premise at: 660 South Euclid, 63110

Dear Ms. Isringhausen:

We have reviewed your request regarding the appropriateness of discharging wastewater from batches of gel stain solution to the Metropolitan St. Louis Sewer District. We have also reviewed the Material Safety Data Sheets. Our understanding is that these wastewater batches are from nucleic acid gel stains in solution, and are being used by your laboratories for staining cells either red or green.

We understand that this discharge is approximately 16 gallons per month per lab, including the buffer solutions, and will be in addition to the other discharges currently in place. The discharge shall be directed from approximately 50 labs to the sanitary sewers through six different sample points, listed in the industrial wastewater discharge permit. These six sample points already include research lab waste as a portion of the process description.

Based on the information you provided and that in the MSD database, it appears that the addition of this wastewater to the effluent from the rest of your facility would result in a total facility effluent which would meet the standards of MSD Ordinance 12559. This daily discharge is acceptable because it is a small, dilute volume of solution, compared to the total wastewater discharge volume.

There are a number of factors which can affect the compliance of the facility effluent with federal standards and MSD Ordinance 12559 standards, and it is the user who has the responsibility to maintain the facility in compliance with those limits. This letter is not intended to allow discharge of any material that would cause a violation of federal standards or the ordinance.

Thank you for your assistance in helping us comply with state and federal regulations. If you have any questions, please contact me at 314.436.8756.

Sincerely.

METROPOLITAN ST. LOUIS SEWER DISTRICT

Scott M. Rehmer Assistant Engineer

INDUSTRIAL FILE

WASH. U. MED. SCHOOL 5112-4253-03 WASH. U. MED. SCHOOL 5112-2162-00

From: Isringhausen, Mary [mailto:isringhausenm@wusm.wustl.edu]

Sent: Monday, April 11, 2011 10:55 AM

To: Scott Rehmer

Subject: RE: discharge test agents

Hello. Yes, let's just start with the <u>one lab</u> asking. They are in 4444 Forest Park (Account number) 51124253-03. This building is not part of our Permit, however Jim Goodall would come and do inspections for this building.

Here are the rounded numbers for monthly usage.

Gel/Green:

 GelGreen: monthly usage: post stained gel-about 30gels, 1.5mL of GelGreen, 15 mL buffer (1X Tris-acetate-EDTA)

Gel/Red:

- poststained gel-about 80 gels: 390ul GelRed in 20.52 L of buffer
- pretstained gel-about 80 gels: (3.5 mL GelRed, 35.25 mL 1x Tris-acetate-EDTA, 282 g seakem LE agarose) in 40 L of buffer

Total volume will be around 60.6 L, or about 16 gallons per month.

In buildings on our permit (Account number 5112216200), there are probably going to be labs asking to do this. My best guess is the above is a high average of what a lab uses and there are probably 50 labs that will be using it.

Livi Isringhausen
Environmental Compliance Manager
Washington University School of Medicine
office 314-362-6735
cell 314-713-3901
fax 314-362-1095
http://ehs.wustl.edu/

From: Scott Rehmer [mailto:srehmer@stlmsd.com]

Sent: Monday, April 11, 2011 10:46 AM

To: Isringhausen, Mary

Subject: RE: discharge test agents

Hi Livi.

Thanks for asking first.

Please let us know from which location, approximate volumes, and which sample point(s).

Thank you.

Scott



From: Isringhausen, Mary [mailto:isringhausenm@wusm.wustl.edu]

Sent: Monday, April 11, 2011 8:25 AM

To: Scott Rehmer **Subject:** Question

Good Morning! We have many labs switching to this nucleic acid test. They are asking if they can dump this down the drain, since the paperwork indicates that it is acceptable. Before I give the go ahead I would like to know your thoughts.

Thanks in advance for your help.

Livi Isringhausen
Environmental Compliance Manager
Washington University School of Medicine
office 314-362-6735
cell 314-713-3901
fax 314-362-1095
http://ehs.wustl.edu/

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Safety Report of GelRed and GelGreen

A Summary of Mutagenicity and Environmental Safety Test Results from Three Independent Laboratories



Overview

Ethidium bromide (EB) has been the stain of choice for nucleic acid gel staining for decades. The dye is inexpensive, sufficiently sensitive and very stable. However, EB is also a powerful known mutagen. It poses a major health hazard to the users, and efforts in decontamination and waste disposal ultimately make the dye expensive to use. To overcome the toxicity problem of EB, scientists at Biotium developed GelRed and GelGreen nucleic acid gel stains as superior alternatives. Extensive tests demonstrate that both dyes have significantly improved safety profiles over EB.

Dye Design Principle

At the very beginning of GelRed and GelGreen development, we made a fundamental recognition that an important way to make a gel stain safe is to eliminate or minimize the chance for the dye to interact with genomic DNA in living cells. Based on this design principle, chemists at Biotium incorporated structural features into the dyes to achieve maximal protection on three fronts: 1) to make the dyes impenetrable to latex gloves; 2) to make the dyes impenetrable to cell membranes; and 3) to make the dyes metabolizable to form compounds that have no or minimal interaction with DNA.

Safety Tests

GelRed and GelGreen were subjected to a series of tests both by us and by three independent testing services to assess the dyes' safety for routine handling and disposal. These tests include: 1) glove penetration test; 2) cell membrane permeability and cytotoxicity test; 3) Ames test; and 4) environmental safety tests. Results of the tests are summarized in Table 1 below. The data show that GelRed and GelGreen have passed all of the tests, thus validating the dye design principle. Detailed test results are described on pages 3-11.

Conclusion

GelRed and GelGreen are a new generation of nucleic acid gel stains. They possess novel chemical features designed to minimize the chance for the dyes to interact with nucleic acids in living cells. Test results confirm that the dyes are impenetrable to both latex gloves and cell membranes. The dyes are noncytotoxic and nonmutagenic at concentrations well above the working concentrations used in gel staining. Furthermore, GelRed and GelGreen have successfully passed environmental safety tests in compliance with CCR Title 22 Hazardous Waste Characterization. As a result, GelRed and GelGreen are not classified as hazardous waste, thus can be safely disposed of down the drain or as regular trash, providing convenience and reducing cost in waste disposal.

Table 1. Summary of GelRed and GelGreen Safety Test Results

	,,,,,,,,,,,,,,										
	Latax Glove	Cell staining			Hazardous Waste Screening	Reactivity	Corrosivity	ignitability			
	Penetration	Cell Membrane Permeability	Cytotoxicity	Ames Test	(aquatic toxicity test)	test	test	test			
GelRed	impenetrable	impenetrable	noncytotoxic	nonmutagenic	nontoxic to aquatic life	unreactive	noncorrosive	nonflammable			
GelGreen	impenetrable	impenetrable	noncytotoxic	nonmutagenic	nontoxic to aquatic life	unreactive	noncorrosive	nonflammable			

This document is intended to provide a brief summary of the safety data on GelRed™ and GelGreen™ obtained from several laboratories. If you wish to see the original test reports, you may contact Biotium Technical Support.



Cell Staining Test

Purpose

The purpose of this test is to see if GelRed and GelGreen can cross cell membranes to stain nuclear DNA.

Method

Hela cells were incubated at 37°C with GelRed, GelGreen, SYBR Safe, and SYBR Green I, respectively. The dye concentrations were all 1X based on the respective dye concentrations used for gel staining for each dye. The SYBR dyes were used as controls as they are known to be able to stain DNA in live cells. Cell staining was followed by fluorescence microscopy using optical filter sets appropriate for each dye.

Results

Microscopic images obtained following 5 and 30 minutes of incubation are shown in Figure 2. SYBR Safe and SYBR Green stained cell nuclear DNA brightly green in only a few minutes (only SYBR Green images are shown). GelRed or GelGreen did not stain cells even following 30 minutes of incubation.

Conclusion

GelRed and GelGreen are impenetrable to cell membranes.

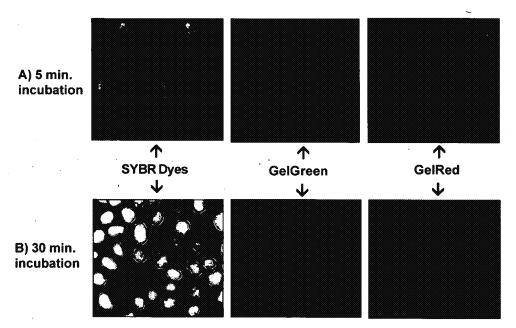


Figure 2. HeLa cells were incubated at 37 °C with 1X of SYBR Green I, SYBR Safe, GelGreen and GelRed, respectively. Images were taken following incubation for 5 min (panel A) and 30 min (panel B), respectively. SYBR Green I and SYBR Safe entered into cells rapidly as evident from the bright green nuclear staining (only images from SYBR Green are shown). However, GelRed and GelGreen were unable to cross cell membranes as shown by the lack of any fluorescence staining.



Glove Penetration Test

Purpose

Latex gloves are commonly worn by researchers in laboratories as protective gear. Thus, it is important to show GelRed and GelGreen do not diffuse through the latex material.

Method

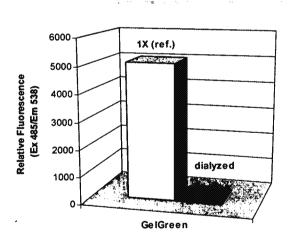
A finger of a latex glove containing TAE buffer was dialyzed against TAE buffer containing 5X GelRed or GelGreen for 48 hours. The solution in the finger was then analyzed for presence of the dye by fluorescence. As a reference, the fluorescence of the dye at 1X was also measured. To increase the sensitivity of the detection, all fluorescence measurements were made in the presence of 100 ug/mL salmon sperm dsDNA.

Results

The results of the test show that both GelRed and GelGreen are impenetrable to latex gloves (Figure 1).

Conclusion

Handling GelRed and GelGreen with latex gloves is safe.



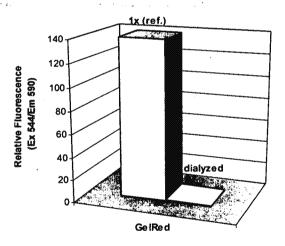


Figure 1. Relative fluorescence of dialyzed solutions for GelGreen (blue) and GelRed (yellow) and the relative fluorescence of the corresponding 1X dye solutions as references. The data show that the amount of the fluorescence for the dialyzed solutions are negligible, suggesting that both dyes can not penetrate latex gloves.

Ames Test

Purpose

The Ames test is a standard assay to assess the mutagenic potential of chemicals. As cancer is often associated with DNA damage, the test can be used to estimate the carcinogenic potential of a chemical compound.

Test System

The test employed two Salmonella strains, TA98 and TA1537, both of which carry mutation(s) in the operon coding for histidine biosynthesis. When these bacteria are exposed to mutagenic agents, under certain conditions reverse mutation from amino acid (histidine) auxotrophy to prototrophy occurs, giving colonies of revertants. Both strains of bacteria used in the assays are among those recommended by OECD 471 for use in the Ames test. These two strains of S. typhimurium have been shown to be reliably and reproducibly responsive between laboratories.

In order to test the mutagenic toxicity of metabolized products, S9 fraction, a rat liver extract, was used in the assays. The S9 fraction contains a mixture of several enzymes and is known to be able to convert some chemicals into mutagens.

Test Articles and Vehicle

GelRed and GelGreen along with ethidium bromide (EB) as a reference were tested under the same condition. DMSO was used for dissolving each dye to give the following stock concentrations: 0 (control), 1, 2.5, 5, 10, 25, 50, 75, 100, 250 and 500 ug/mL.

Test Procedure

The following was added to each sterile culture tube containing 2.0 mL top agar: 0.1 mL of overnight cell culture (TA98 or TA1537), 0.1 mL of each dye concentration for each dye or control chemical, and either 0.5 mL of S9/Cofactor mix or 0.5 mL of phosphate buffered saline. By using the above 10 stock solutions for each dye plus the control, the following per plate dosages for each dye were used: 0, 0.1, 0.25, 0.5, 1, 2.5, 5, 7.5, 10, 25, and 50 ug/plate. These dosages corresponded to a final dye concentration of: 0, 0.04, 0.09, 0.19, 0.37, 0.93, 1.85, 2.78, 3.7, 9.3, and 18.5 ug/mL, respectively.

The contents of each tube were vortexed, poured onto Vogel-Bonner media plates, and evenly distributed. The agar on the test plates was allowed to harden. The plates were inverted and incubated at 37 °C for 2 days.

Revertant colonies were counted using a New Brunswick Biotran III automatic colony counter.



Results from Ames Test Using Salmonella Strain TA98 without S9 Metabolic Activation

(Tests performed by Litron Laboratories Inc., Rochester, NY)

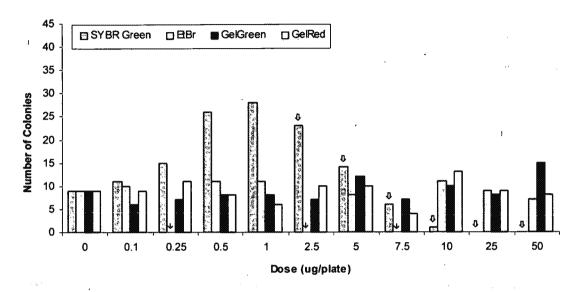


Figure 3. Comparison of mutagenicity among GelGreen™, GelRed™, SYBR® Green I and EB in +1 frameshift Salmonella indicator strain TA98 without the presence of S9 fraction. '↓' indicates EB was not tested at this concentration. '↓' indicates SYBR® Green I became cytotoxic at this concentration.

Conclusion

- □ GelGreen and GelRed are nonmutagenic over the dose range from 0.1 ug/plate (or 40 ng/mL) to 50 ug/plate (or 18.5 ug/mL) in +1 frameshift Salmonella indicator strain TA98 without S9 metabolic activation. The working concentration used in gel staining for both GelRed and GelGreen is 1-3 ug/mL (1X-3X), which is well within the safety range.
- ☐ EB is nonmutagenic without S9 metabolic activation, consistent with and earlier report (McCann, et al. *Proc. Natl. Acad. Sci. USA* **72**, 5135)(1975)).
- □ SYBR Green I shows weak dose-dependent mutagenic response at up to 1 ug/plate (or 0.37 ug/mL) and becomes cytotoxic thereafter, consistent with an earlier report (Singer, et al. *Mutat. Res.* 439, 37(1999)).



Results from Ames Test Using Salmonella Strain TA98 with S9 Metabolic Activation

(Tests performed by Litron Laboratories Inc., Rochester, NY)

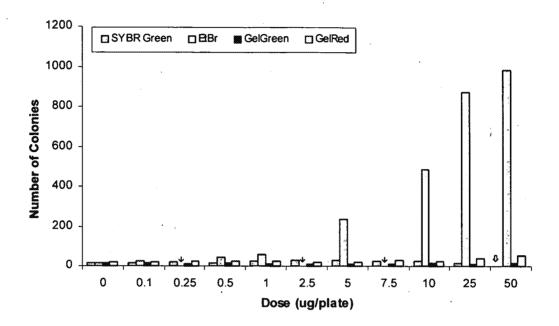


Figure 4. Comparison of mutagenicity among GelGreen™, GelRed™, SYBR® Green I and EB in +1 frameshift Salmonella indicator strain TA98 with the presence of S9 fraction. "↓" indicates EB was not tested at this concentration. "↓" indicates SYBR® Green I became cytotoxic at this concentration.

Conclusion

- □ GelGreen is nonmutagenic over the dose range from 0.1 ug/plate (or 40 ng/mL) to 50 ug/plate (or 18.5 ug/mL) in +1 frameshift Salmonella indicator strain TA98 with S9 metabolic activation. GelGreen working concentration used in gel staining is 1-3 ug/mL (1X-3X), which is well within the safety range.
- □ GelRed is only weakly mutagenic at very high dose (50 ug/plate or 18.5 ug/mL) with S9 metabolic activation. GelRed working concentration used in gel staining is 1-3 ug/mL (1X-3X), which is well within the safety range.
- □ SYBR Green I is nonmutagenic at lower concentrations (0.1-25 ug/plate or 0.04-9.3 ug/mL), but becomes cytotoxic at higher concentrations (≥25 ug/plate or 9.3 ug/mL), consistent with an earlier report (Singer, et al. *Mutat. Res.* 439, 37(1999))
- \square EB is highly mutagenic with S9 metabolic activation, consistent with the known toxicity of the dye.



Results from Ames Test Using Salmonella Strain TA1537 without S9 Metabolic Activation

(Tests performed by Litron Laboratories Inc., Rochester, NY)

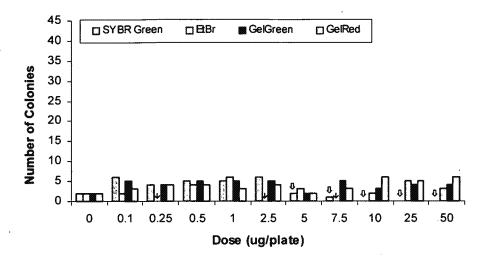


Figure 5. Comparison of mutagenicity among GelGreen™, GelRed™, SYBR® Green I and EB in -1 frameshift Salmonella indicator strain TA1537 without the presence of S9 fraction. *↓* indicates EB was not tested at this concentration. *®* indicates SYBR® Green I became cytotoxic at this concentration.

Conclusion

□ GelGreen and GelRed are nonmutagenic over the dose range from 0.1 ug/plate (or 40 ng/mL) to 50 ug/plate (or 18.5 ug/mL) in -1 frameshift Salmonella indicator strain TA1537 without S9 metabolic activation. The working concentration used in gel staining for both GelRed and GelGreen is 1-3 ug/mL (1X-3X), which is well within the safety range.

☐ SYBR Green is nonmutagenic at lower concentrations (0.1-2.5 ug/plate or 0.04-0.93 ug/mL), but becomes cytotoxic at higher concentrations (≥2.5 ug/plate or 0.93 ug/mL), consistent with an earlier report (Singer, et al. *Mutat. Res.* 439, 37(1999)).

□ EB is non mutagenic without S9 metabolic activation, consistent with an earlier report (McCann, et al. *Proc. Natl. Acad. Sci. USA* 72, 5135)(1975)).



Results from Ames Test Using Salmonella Strain TA1537 with S9 Metabolic Activation

(Tests performed by Litron Laboratories Inc., Rochester, NY)

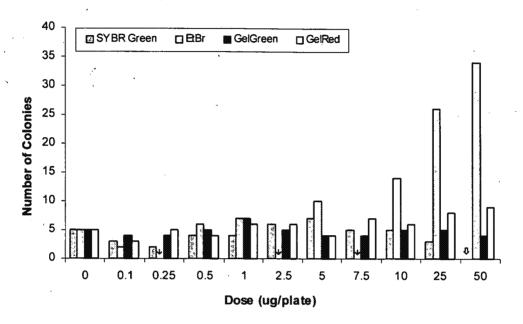


Figure 6. Comparison of mutagenicity among GelGreen™, GelRed™, SYBR® Green I and EB in Salmonella -1 frameshift indicator strain TA1537 with the presence of S9 fraction. "↓" indicates EB was not tested at this concentration. "↓" indicates SYBR® Green I became cytotoxic at this concentration.

Conclusion

- □ GelGreen and GelRed are nonmutagenic over the dose range from 0.1 ug/plate (or 40 ng/mL) to 50 ug/plate (or 18.5 ug/mL) in -1 Salmonella frameshift indicator strain TA1537 without S9 metabolic activation. The working concentration used in gel staining for both GelRed and GelGreen is 1-3 ug/mL (1X-3X), which is well within the safety range.
- $\ \square$ EB is highly mutagenic with S9 metabolic activation, consistent with the known toxicity of the dye.
- □ SYBR Green is nonmutagenic at lower concentrations (0.1-25 ug/plate or 0.04-9.3 ug/mL), but becomes cytotoxic at higher concentrations (≥25 ug/plate or 9.3 ug/mL), consistent with an earlier report (Singer, et al. *Mutat. Res.* 439, 37(1999)).



Aquatic Toxicity Test

(Performed by Nautilus Environmental, San Diego, CA)

Purpose

This test assesses the acute toxicity of GelRed and GelGreen to aquatic life. The results of the test are used to determine if the dyes can be directly released into the environment for disposal.

Test Specifications

Test start date and time: 4/7/08, 09:30

Test end date and time: 4/11/08, 08:45

Test organism: Pimephales promelas (Fathead minnow)

Organism mean length/weight: 34 mm/0.34 g

Test concentration: 750, 500, and 250 mg/L sample (GelRed or

GelGreen at 3X); plus Lab Control

Number of replicates and fish: 2 replicates with 10 fish each (20 fish total per concentration)

Method used: California Department of Fish & Game, 1988 Acute Procedures; EPA/600/4-85/013, 1985 Acute Manual Regulatory guidelines: CCR Title 22 Hazardous Waste Characterization

Passing requirements: Sample must result in greater than 50% survival at a concentration of 500 mg/L ($LC_{50} > 500$ mg/L) to be "not hazardous" to aquatic life.

Results

The results are summarized in Table 2 below. Both samples gave LC_{so} > 750 mg/L.

Conclusion

Both GelRed and GelGreen at 3X are classified as nonhazardous to aquatic life, under CCR Title 22 regulation. Thus, GelRed and GelGreen at 3X or lower concentrations can be safely released into the environment.

Table 2. Summary of GelGreen and GelRed Aquatic Toxicity Test Results

Sample	Dose (mg/L)	% Survival
Lab Control		95
	250	100
GelRed	500	100
	750	100
	250	100
GelGreen	500	100
	750	100



Corrosivity, Reactivity and Ignitability Tests

(Performed by Curtis & Tompkins, Ltd., Analytical Laboratories, Berkeley, CA)

Purpose

The corrosivity, reactivity and ignitability of GelRed and GelGreen solutions are tested. These tests are designed to further assess the environmental safety of GelRed and GelGreen and safety associated with the shipping, handling and storage of the dyes.

Methods

All tests were conducted according to EPA guidelines or ASTM guideline as specified in the result table below.

Results

Results of the tests are summarized in Table 3 below.

Conclusion

Based on these results, GelRed and GelGreen at 3X or lower concentrations are classified as non-corrosive and non-hazardous materials.

Table 3. Summary of Environmental Safety Test Results

Test Name (test code)	GelGreen, 3X	GelRed, 3X		
Reactive cyanide (SW-846 CH.7)	None detected	None detected		
Reactive Suffide (SW-846 CH.7)	None detected	None detected		
pH (EPA 9040C)	4.0	5.3		
Flash Point (ASTM D-93)	>150 deg. F	>150 deg. F		



METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL FACILITY REINSPECTION REPORT

Company: Washington University School	of Medicine	9	Account #:	5112216200					
Premise Address: 660 s. Euclid									
MSD Classes: SIU X CIU Surch	ic Proc Waste								
No Process Flow Multi									
Company Representative: Livi Isringhaus		-		- -					
Title: Environmental Compliance Manage			Phone#: 314-3						
Inspector: Jason Gill	1		FIIOIIE#	302-0733					
-			,						
Others Present: None									
Inspection Date: 2/28/11 Time: From	9:00 AM	To <u>11:</u>	<u>55 AM</u> (Last Ir	nsp. <u>10/28/09</u>)					
NOTE: ALL ITEMS ARE TO BE COMPLETED BASED OF INFORMATION OBTAINED OR PROVIDED BY COM *** DATABASE ALSO UPDATED WITH APPROPR	PANY DURING	INSPECTIO	ON, AS WELL AS IN	FORMATION IN FILE.					
1 7 ADD WHEDE ADDITIONAL WON ORODINA		3700 3777947577		🖾					
1. A. ARE THERE ADDITIONAL NON-STORMW				Yes⊠ No□					
List them, note any changes: $\frac{5}{2}$	1122161-00	, 511221	67-00, 5112216	<u> </u>					
			481063 <u>=00</u> = ne	w_acctfor_new					
	25_SEucl			***************************************					
B. Did all acct no's have water us				Yes□ No⊠					
C. If no to B, explain: Water use				Driver's					
∠ <u>License</u> -F	ield_needs	_to_be_pc	pulated>						
2 DECCERCES COLEANIED (MAGNECINI	Comb /	T.7 - 4	7						
2. PROCESSES & CLEANUP/WASHDOWN:	Cont/	Water		- ·					
	Batch	Used?	of discharge						
Research & teaching labs	Cont	Yes	Daily	001, 003, 005,					
				007, 008, 009					
Housing & care of research mice	Cont	Yes	Daily	003, 005, 007,					
				008, 009					
Kitchen services	Batch	Yes	Daily	005					
Hazardous materials clean-up	Batch	Yes	Daily	006					
(Building 80)			1						
	(None)	N/A							
	(None)	N/A							
	1 (110110)	1 247 22	<u> </u>						
3. PRETREATMENT (other than grease traps) -	decaribe.			Cample nt					
	describe.		9430	Sample pt.					
pH neutralization				003,005,006,00					
				7					
Silver recovery				001, 003, 005,					
				006					
4. DOES COMPANY HAVE ANY GREASE TRAPS? If yes: A. List sample points: 005 B. What is the frequency for cl	If yes: A. List sample points: 005								
C. Are any additives used in tr D. If yes to C, was co. warned MSD E. Was co. informed that MSD perfo	aps? will bill	them for b	olockages they can						
5. HAS COMPANY CONSTRUCTED NEW BLDGS/A If yes: A. Ask company: Did they notify B. If no or unknown, has inspec C. Comments: Construction is compl activities are primar at half of the project	MSD's Plat tor notification notificate for neurons lete for neurons	n Review ed Plan F ew buildi cch labs,	group? Unki deview group? ng at 425 S. Eu and they are c	nown Yes No Yes No No Yes No No No No No No No No No No No No No					

1

6.					TANTS SII	NCE THE LAST INSP?	Yes□ No⊠
ΙĖ		B. Will MSD C. Will MSD (MSD mus		ng NPDES dexceed 0.1	mg/l for	limit(s)? any new pollutant? ascharge will continue.	Yes No Yes No
	. D.	Comments:					
7. If			FEDERALLY REGULATED g. & describe (incl				Yes□ No⊠
8.	DOE	S CATEGORICA	AL WASTEWATER COMBI	INE WITH NO	N-CAT. W	W PRIOR TO SAMPLING?	Yes□ No⊠
Ιf	yes:	A. At which	points?				
			applied factor:		~	Is it correct?	Yes No
		C. If no, 1	ist correct factor	/explain?			
9. Tf		ANY WASTEWAT A. At which	TER SUBJECT TO PROD	OUCTION OR	MASS BASI	ED STANDARDS?	Yes□ No⊠
11	Acs.			current l	imits. h	as the long term avg	Yes No
			ion rate or dischar				TOOL HOL
			o B, explain:		_	-	
10	ממג	ANV DADIOAC	CTIVE MATERIALS HAN	ini ena			V N-
			e operations & disp		terials a	are collected from al	Yes⊠ No□ l buildings
	1		· · · · · · · · · · · · · · · · · · ·			nt to Bldg. 80 for	
						hauled, liquids are	decayed and
				<u>di</u>	scharged	to sanitary sewer.	, gy
			npany have MSD auth cent authorization			osal to sewer? NA	Yes⊠ No∐
					<u>8/94</u> plete cal	lendar year: 343.4 MC	т
					.p.zooo ou.	<u> </u>	ado-
11			P&E WASHDOWN WATE				Yes□ No⊠
	Α.		use was verified				
			ses are very water was observed during			large university. N	o excessive
		Water and W	and obbotived during	, che warne	irougii.		
12	. BAS	ED ON OBSERV	ATIONS DURING INST	PECTION, DO	DES COMPA	NY APPEAR TO HAVE	Yes□ No⊠
			r is not dischargei	TO SEWER	?		
		A. Describe		waabuwa ai		ompany?	17 1571 - 17 - 157
	ь.		of whether some w				Yes No
		\			0 01001101	ged co bewer,	•
13	. HAS	COMPANY EXC	CEEDED ORDINANCE D	SCHARGE L	MITS SIN	CE LAST INSPECTION	Yes□ No⊠
Тf	OR yes:	WITHIN THE I A.	LAST 12 MONTHS (if	last insp Sample		hs ago)? lem resolved?	•
	yes.	Pollutant	When	Points	Yes/No	Describe	
	Í	**************************************		The state of the s	N/A		3000.1000
	Ì				N/A	·	
					N/A		
					N/A		
					N/A		

B. Comments:

	S COMPANY EXCEEDED E LAST INSPECTION				112 211	ICE NAL	M res No
If yes:	A.	OR WITHIN I	Sample		oblom i	resolved?	
ir yes:	Pollutant	When	Points		o Des		
	FOITUCAIC	WIIGH	FOIRES		O Desi	CLIDE	
				N/A			
	***************************************			N/A		·	
				N/A			
			_	N/A			
מ	Comments:			N/A			
ь.	Comments:						•
15. HAV	VE THERE BEEN ANY	DROBLEM DIS	CHAPGES SIN	ICE 1.አርጥ	TNCDEC	ייייד ווייי	Yes□ No⊠
If yes:	A. Upsets?						Tea NOM
	Spills?						
	B. Explain any m			0011027	***************************************	•	
						-	•
16. COT	ULD SPILLS OR LEAK	S OF PROCES	S TANKS, ST	ORED WA	STES, C	R STORED	Yes□ No⊠
	EMICALS EASILY REA						Kanada and Kanada
If yes:	A. What needs to	be done?				į.	
If no:	B. How are they	controlled?					
	Chemical wast	e in Bldg.	80 is sto	ored on	contai	nment pallets, a	and the bulk
						for containment	
						llection areas th	
		ains. Ther	<u>e is an e</u>	mergency	y respo	onse team on sit	e to handle
	<u>spills.</u>						•
	SED ON OBSERVATION					REAS WHERE	Yes□ No⊠
	MPANY ACTIVITIES A	APPEAR TO IM	PAIR STORMW	ATER RU	NOFF?		
II yes:	A. Describe:	h	The state of the s				
C	B. What needs to Was "Illicit Sto		ahawaaali ha				77 - KZ - 77 - C
С.	(regardless of w					o company?	Yes⊠ No□
	(109eraroso or W	necher chere	are any p.	TODICIII 6	arcas,		
18. DOI	ES COMPANY HAVE AN	Y SPILL CON'	TROL OR SLU	G DISCH	ARGE CO	NTROL PLANS?	Yes⊠ No□
If yes:					Last	Update neede	
•	Title				Jpdate	Explain if y	
	1. SPCCP		, concentration		3/1/09	No No	
	2.				7, 2, 0,	N/A	W. 41.
В.	Are any Plans ne	eded (in add	dition to t	hose lis	sted in		Yes□ No⊠
	(If yes, write c				300u 111	I WILL PIT.	103 NOM
19. DOI	ES COMPANY HAVE AN	Y MAINTENAN	CE SHOP PAR	TS WASH	ERS?		Yes□ No⊠
If yes:	A. Parts washer						105 TIOKA
_	B. Priority poll	utants (or '	'none"):				
	C. How is spent	solvent disp	oosed?				
	(Parts washer s	solvents are	not included	in data	base's p	priority pollutants	list, nor
	monitored for u	unless condit	ions show po	tential	dischar	ges)	
00 3==	- 1111 ADATTERS						Annua
	E ANY ORGANICS OR		ED (OTHER T			ASHERS)?	Yes⊠ No□
TT AGE:	A. Solvent name/			413/43	•	**- 11	Priority
	components	Used for?		Proces		How disposed?	Pollutant?
	(See attached	d Lab reage	nts	Yes	ио⊠	Hauled off site	Yes⊠ No□
	list)			J.,	37-17		<u> </u>
				Yes	No		1 37 1 37 1
					37 - []		Yes No
				Yes	No		Yes No
				Yes Yes	No No		

21. If	(only applies if company uses solvents in 413/433/469 processes)	Yes No No No No No No No No No No No No No
	 B. If no to A, date of last update for SMP: C. Is there a copy of the Spill/Slug Plan or SMP in the files? D. Does SMP address all 413/433/469 solvents? (If no to C or D, write company and require submittal and/or updat 	Yes No No No No No No No No No No No No No
22	ARE EMERGENCY NOTIFICATION PROCEDURES POSTED THAT INCLUDE MSD CONTACTS? A. Was company provided notification cards & told to post where emergency response personnel can locate them? (Must post if co. generates process wastewater or stores chemicals of	Yes No No No No No No No No No No No No No
23 If	. IS COMPANY REQUIRED TO SELF-MONITOR ANY OF THEIR DISCHARGES? yes: A. Is requirement contained in permit ⊠ or other document □. B. If other document, date & description: C. How frequently is sampling required? Quarterly D. How frequently are reports required? Quarterly E. Have reports been on-time, complete & signed by proper person? F. If no, explain: Failure to sample at 006 for the 1st Qtr. 2010	Yes⊠ No⊡
24 If		Yes No No Yes No No Yes No Yes No Yes No Yes No
25 If	. DOES CO. CONTINUOUSLY MONITOR AT SAMPLE POINT AND KEEP A PERMANENT RECORD FOR: pH, TEMP, LEL? yes: A. At which SPs?	Yes□ No⊠
	B. Does company submit quarterly summaries? C. If no, explain:	Yes No
26 If	yes: A. Is company having the samples analyzed B. How does company insure proper preservation, holding times & analytical methods?	Yes No No
	C. Has company submitted results of all split sample analyses since the last insp? D. Have results been submitted within 28 days of the collection's calendar quarter?	Yes No Yes No
	E. If no to C, or D, explain: F. Does company still want to split samples? G. Comments:	Yes No
27	. IS COMPANY UNDER ANY ENVIRONMENTAL ENFORCEMENT ORDERS OR REQUIREMENTS TO SUBMIT COMPLIANCE SCHEDULE REPORTS?	Yes∏ No⊠
If	yes: A. Type and date: B. Have the reports & actions been on-time & complete? C. If no, explain:	Yes No
28.	. ASK COMPANY: IS CO. IN COMPLIANCE W/APPLICABLE NESHAP REGS FOR WW DISCHARGES? [Some MDNR-issued Title V air permits for specific processes allow pre-approved WW discharge.] [City/County-issued air permits are not NESHAP permits.] no: A. Describe:	Yes⊠ No□
	B. Was MDNR Air Pollution Control informed? (must be done)	Yes No
29 If	. DOES COMPANY RETAIN ALL WASTEWATER RECORDS FOR AT LEAST 5 YEARS? no: A. How long does company retain records?	Yes⊠ No□
	B. Was company told to retain for at least 5 years, per ordinance? C. Where are they kept? Environmental Compliance Manager's office	Yes No

(01/11)

30.					NEED TO BE			Yes 🗌	Ио⊠
If yes: A. Indicate correct classifications: SIU CIU Surch. Potential Toxic Waste Non-Toxic Proc Waste							:е П		
No Process Discharge Multi-User Special Handling/Billing									
B. Explain changes:									
31. IS COMPANY CLASSIFIED AS "Special Handling/Billing"? Yes No [2] No [3] No [3] No [4] No [4] No [4] No [5] No [6] No									No⊠
Tr A	:	в.		ny changes s, explair		reasons/detail	s?	Yes	No
						wed & verified	for special NA	Yes	No
					g reports?				4
32.	CVM	ים.דם	POINT	יכ				D.T.	(y/n)
ا	SP :		001	Fed.Reg.	N/A	Components:	Sanitary, process waste,	V:3	No No
		11	001	rea.Reg.	11,11	componency.	wash, lab waste, NCCW reject, storm water		110
	SP :	#	003	Fed.Reg.	N/A	Components:	Sanitary, process waste,	NCCW,	No
							lab waste, P&E wash, water	storm	
·	SP	#	005	Fed.Reg.	N/A	Components:	Sanitary, process waste, b		No
					•		blowdown, NCCW, kitchen w P&E wash, lab waste, RO re		
							storm water	,,,,,,	
	SP :	#	006	Fed.Reg.	N/A	Components:	Sanitary, P&E wash, storm	water	No
	SP :	#	007	Fed.Reg.	N/A	Components:	Sanitary, process waste,		No
							wash, alb waste, NCCW, water	storm	
	SP :	#	008	Fed.Reg.	N/A	Components:	Sanitary, P&E wash, lab w	aste.	No
•				J			NCCW, storm water	,	
					27/2			,	
	SP :	#	009	Fed.Reg.	N/A	Components:	Sanitary, P&E wash, lab w NCCW, storm water	aste,	No
33.	ARE	AN	Y SAMP	LE POINTS	TRAPPED VEN	TS?		Yes⊠	МоП
If ye		A.	List	SPs: SPO	06				
		В.	Was c	o. informe	ed that T-ve	nts are prefer	red, and told why?	Yes⊠	No
34. If ve				ES AT ANY SPs and re		RREGULAR ENOUG	H TO ALLOW GRAB SAMPLES?	Yes	№⊠
,2 .	-				мыличения				
35.						S? (list each	lateral separately)	Yes[Ио⊠
			SP # SP #		nponents:			<u> </u>	
	Duini	my a)P #	Con	ponents:				
36. If ye	DO Z	ANY A.	SAMPL List	E POINTS Sample Poi	(including U .nts: <u>001,</u>	nsampled/Dummy 003, 006, 007	SPs) RECEIVE STORMWATER?	Yes🏻	No
37.	WEF	RE A	LL SA	MPLE POINT	'S (except D	ummy SPs) OPEN	ED & INSPECTED? No SPs	Vec	моГ
	Α.					or opened, ex		16967	110[
	В.					be changed, e			
	C. D.				: other prob : SPs & desc:		erved in any SP?	Yes	$No \boxtimes$
	E.						corrective actions?	Yes	No
38.	REV	IEW	THE S	AMPLE POI	IT MAP!		Last map revision date: 1/	2/09	
•	A. B	Is	the m	ap correct	and accura	te in <u>all</u> its	details? f SP008 & SP009	Yes _	No⊠
				3					

39. DO INSTRUCTIONS FOR "Contact Prior to Sampling" OR FIELD VISIT "Special Instructions" NEED REVISION? Yes□ No⊠

If yes: A. List needed changes:

USE THIS SPACE FOR ANY OTHER COMMENTS/OBSERVATIONS PERTINENT TO YOUR INSPECTION OF THIS SITE. The building at 425 S. Euclid is new since last inspection, and it is occupied at about half of its capacity with lab activities currently underway. A water account at 4905 Children's Place was identified as the source for the new building. The new secondary account added is 10481063-00. There are two new lateral connections from the building (laterals 06 & 07 in PIMS), one line on the East side and one on the North. Separate sample point manholes, SP008 and SP009 in PIMS, have been identified for monitoring. Discharge volumes for both points include lab waste, NCCW, P&E wash, and sanitary. Storm water will also be part of both points. The lab activities are basically the same type of research labs but in a brand new building. There are no wet film processing units or pH adjustment at either sample point. There are eleven stories total, and floors four and five are not yet occupied.

The parts washers with mineral spirits as the solvent are no longer used and have been removed from the premises.

Wet film processing in the form of x-ray development still occurs at the same sample points, although eventually the process will be all-digital.

Priority pollutants have been updated to compare solvent list provided by the facility contact. All organics that were marked "KP" on the pollutant list that were not on the provided solvent list have been switched to "SP."

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME

Report No. PIMS012A

Data Date & Time:

04/28/2011

04/28/2011

1:54:10 pm

1:54:10 pm

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address

PRIMARY MSD ACCOUNT NO. 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

	PRIMARY MSD ACCOUNT NO. 5112216200	St. Louis MO. 63110
CONTACTS	INDUSTRIAL USER CLASSIFICATIONS WUNNENBERG INFO.	SIU CRITERIA
Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Co. Grid: J 20 Page 78 Warrist Loss icity & Grid: J 20 Page 78 Warrist Loss ici	01/12/1999 SIU Base Map 19G3	PR25 Process Disch => 25 000 GPD
Cont. 1.00	06/09/1998 PTW Wun:St Louis City & Co	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
INSPECTION INFORMATION INSPECTION INFORMATION FERMIT INFORMATION IUQ INFORMATION Iuq Iuq Iuq Iuq Iuq Iuq Iuq Iuq Iuq Iuq	1 11	
	07141720748020	
Eaple Date 12/31/2012 Eaple Date 12/	GENERAL INFORMATION INSPECTION INFORMATION	PERMIT INFORMATION IUQ INFORMATION
St. Louis, MO. 63110 C92792011 RN Jason Gill St. Louis, MO. 63110 C92792011 RN Jason Gill St. Louis, MO. 63110 C92792011 RN Jason Gill St. Louis, MO. 63110 C92792011 RN Jason Gill C92792011 Rn Jason Gill C92792011 Rn Jason Gill C92792011 RN Jason Gill C92792011 Rn Jason	Office Mailing Address Next Due	Issue Date: 01/01/2008 IUQ Recvd Date: 08/19/2002
Billine Address		Expire Date: 12/31/2012 Reviewer: Fabian Grabski
Street S	₹02/28/2011 RIN Jason Gill-	0.720,200
CONTACTS	· · · · · · · · · · · · · · · · · · ·	Sout terminal surviva
CONTACTS		VII.VII.IIV
CONTACTS		i i
CONTACTS		
BILL Livi Isringhausen		Writer Scott Rehmer
FLD Livi Isringhausen		
Livi Isringhausen		(314) 362-6735 Ext.
FLD2 Linda Vishino Environmental Compliance Manager FAX (314) 935-7864 Ext. (314) 362-6735 Ext.		(314) 362-1095 Ext.
OFF Livi Isringhausen		(314) 362-6735 Ext.
Livi kringhausen	FLD2 Linda Vishino Environmental Compliance Officer OFF ((314) 935-7864 Ext.
OFFICE Company Compa	OFFI Livi Isringhausen Environmental Compliance Manager FAX ((314) 362-1095 Ext.
Number 1		(314) 362-6735 Ext.
1 7,000 09.00AM 8.0 Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	OPERATIONAL INFORMATION	OTHER AGENCIES INFORMATION
Total Emp: 1.500 06:00PM 8.0 Y Y Y Y Y Y Y	Work Days: 7 SMTWTFS	
Total Emp:_2	1 <7,000 09:00AM 8.0 Y Y Y Y Y Y Y	
Oli/Os/1997 EPA - Hazardous Waste Program MOT 300010857	2 3500 06:00PM 8.0 Y Y Y Y Y Y	Y 11
NON-SEWERED WASTE On-Site Storage Y On-Site Disposal N Off-Site Disposal Y O2/28/2011 Equipment Oils and/or Grease O2/28/2011 Equipment Oils and/or Grease O2/28/2011 Equipment Oils and/or Grease O2/28/2011 Equipment Oils and/or Grease O2/28/2011 Solvents/Thinners O2/26/499 U2/28/2011 Solvents/Thinners O2/26/499 U2/28/2011 Solvents/Thinners O2/26/2000 LBS O2/28/2001 Utber Lab chemicals/reagents O6/28/2007 Acids and/or Alkalies O6/28/2007 Unification Waste O6/28/2007 Organic Compounds O6/28/2007 Organic Compounds O6/28/2007 Radioactive Waste O6/28/2007 Radioactive Waste O6/28/2007 Value Was	Total Emp: (7,500) Hrs: 16.0	· · · · · · · · · · · · · · · · · · ·
NON-SEWERED WASTE		
On-Site Storage	NON-SEWERED WASTE	······································
D2/28/2011 Equipment Oils and/or Grease 9,000 GAL U2/28/2011 Kitchen/Food Service Grease 2,500 LBS 09/28/2005 MSD - Billing Account Number 00347308 00246504 09/28/2011 001467 00146	On-Site Storage Y On-Site Disposal N Off-Site Disposal Y	1 1
02/28/2011 Paints or Paint Sludges 160 LBS 09/28/2005 MSD - Billing Account Number 00246504 09/28/2005 MSD - Billing Account Number 00246496 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 09/28/2005 09/28/2005 MSD - Billing Account Number 09/28/2005	02/28/2011 Equipment Oils and/or Grease 9,000 GAL	
02/28/2011 Solvents/Thinners 52,000 LBS 09/28/2005 MSD - Billing Account Number 00246496 09/28/2007 Acids and/or Alkalies 09/28/2005 MSD - Billing Account Number 00246496 09/28/2005 MSD - Billing Account Number 00246496 09/28/2005 MSD - Billing Account Number 00246498 09/28/2007 09/28/2005 MSD - Billing Account Number 00246498 09/28/2007 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/20		09/28/2005 MSD - Billing Account Number 00377308
02/28/2011 Other Lab chemicals/reagents 68,000 LBS 09/28/2005 MSD - Billing Account Number 00246495 06/28/2007 Acids and/or Alkalies 398000 LBS 09/28/2005 MSD - Billing Account Number 00246498 06/28/2007 Organic Compounds 3520 GAL 09/28/2005 MSD - Billing Account Number 00246495 06/28/2007 Radioactive Waste 1500 LBS 09/28/2005 MSD - Billing Account Number 00246495 06/28/2007 Radioactive Waste 1500 LBS 09/28/2005 MSD - Billing Account Number 00246495 09/28/2007 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 09/28/2007 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246495 05/28/2007 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246498 05/28/2007 MSD - Billing Account Number 00246498 09/28/2005 MSD - Billing Account Number 00246498 <tr< td=""><td></td><td>09/28/2005 MSD - Billing Account Number 00246504</td></tr<>		09/28/2005 MSD - Billing Account Number 00246504
O6/28/2007 Acids and/or Alkalies 800 GAL O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2007 Organic Compounds 3520 GAL O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2007 Organic Compounds 3520 GAL O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 MSD - Billing Account Number O0246498 O9/28/2005 O9		
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06/28/2007 Organic Compounds 3520 GAL 09/28/2005 MSD - Billing Account Number 00377308 06/28/2007 Radioactive Waste 1500 LBS 09/28/2005 MSD - Billing Account Number 00246495 09/28/2005 MSD - Billing Account Number 00246498 FRAW.MATERIALS SIC INFORMATION		
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O9/28/2005 MSD - Billing Account Number O0246498 COMMAND MAM MAM EFF DATE MATERIALS SIC INFORMATION SIC DESCRIPTION 05/07/2004 Laboratory chemicals & reagents PRODUCTS EFF DATE DESCRIPTION 05/07/2004 UNIT AVG_PROD MAX_PROD 05/07/2004 Medical school		1 7
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SIC INFORMATION EFF DATE MATERIAL_DESCRIPTION QUANTITY UNIT 05/07/2004 Laboratory chemicals & reagents SIC DESCRIPTION 0279 Animal Specialties, NEC 8221 Colleges, Universities & Professional Schools 8733 Noncommercial Research Organizations	$\ddot{\mathtt{T}}$	
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EFF DATE MATERIAL_DESCRIPTION QUANTITY UNIT 05/07/2004 Laboratory chemicals & reagents SIC DESCRIPTION 0279 Animal Specialties, NEC 8221 Colleges, Universities & Professional Schools 8733 Noncommercial Research Organizations PRODUCTS	RAW MATERIALS	SIC INFORMATION
05/07/2004 Laboratory chemicals & reagents 0279 Animal Specialties, NEC 8221 Colleges, Universities & Professional Schools 8733 Noncommercial Research Organizations PRODUCTS EFF DATE DESCRIPTION UNIT AVG_PROD MAX_PROD 05/07/2004 Medical school	EFF DATE MATERIAL_DESCRIPTION QUANTITY UNIT	
PRODUCTS EFF DATE DESCRIPTION 05/07/2004 Medical school B221 Colleges, Universities & Professional Schools Noncommercial Research Organizations AVG_PROD_MAX_PROD AVG_PROD_MAX_PROD	05/07/2004 Laboratory chemicals & reagents	
PRODUCTS EFF DATE DESCRIPTION UNIT AVG_PROD MAX_PROD 05/07/2004 Medical school		
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05/07/2004 Medical school		T AVG PROD MAX PROD
	05/07/2004 Research institution	
05/07/2004 Research animal care & housing	05/07/2004 Research animal care & housing	

MSD 044623

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUST AL DATA SHEET - FACILITY INFORMA

INDUSTRY NAME PRIMARY MSD ACCOUNT NO.

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address 5112216200

660 S. Euclid Ave. St. Louis MO. 63110

SEMERACCOUNTIS Sewer Accounts 5112216200 (1048106300) 5112216100 5112216700 5112216800 5112217601 9000637201

WATTER CONSUMPTION AND WASTEW	ATERIDIS	CHARGE			
Start Date = 04/01/2010 12/00/00/00/00/00	= 04/01/	2011 12:59:59PM	days Cdays	·	
Acct. No.	Co	nsumption		Dise	charge
5112216100	CCF's	Gallons		Gal/ Wday	Gal/ Cday
5112216100 02/03/2010 05/04/2010	1,280	1,280 A	91 91	91	
5112216100 05/05/2010 08/03/2010	1,660	2,940	91 91	182	
5112216100 08/04/2010 02/16/2011	1,490	4,430	197 197	379	
RF 1.00 Acct. Total	4,430	3,313,870	379	379 8,744	8,744
5112216200	CCF's	Gallons		Gal/ Wday	Gal/ Cday
5112216200 02/03/2010 05/10/2010	11,772	11,772 A	97 97	97	
5112216200 05/11/2010 08/17/2010	16,015	27,787	99 99	196	
5112216200 08/18/2010 02/26/2011	14,829	42,616	193 193	389	
RF 0.90 Acct. Total	42,616	31,878,984	389	389 73,756	73,756
5112216700	CCF's	Gallons		Gal/ Wday	, Gal/ Cday
5112216700 02/19/2010 05/12/2010	18,687	18,687 A	83 83.	٠83	
5112216700 05/13/2010 08/11/2010	33,017	51,704	91 91	174	
5112216700 08/12/2010 02/16/2011	19,126	70,830	189 189	363	
RF 0.68 Acct. Total	70,830	52,984,523	363	363 99,255	99,255
5112216800	CCF's	Gallons		Gal/ Wday	Gal/ Cday
5112216800 02/20/2010 05/03/2010	174	174 A	73 73	73	
5112216800 05/04/2010 08/03/2010	200	374	92 92	165	
5112216800 08/04/2010 03/01/2011	2,700	3,074	210 210	375 ·	
RF 1.00 Acct. Total	3,074	2,299,512	375	375 6,132	6,132
5112217601	CCF's	Gallons		Gal/ Wday	Gal/ Cday
5112217601 02/03/2010 05/10/2010	0	0 A	97 97	97	
5112217601 05/11/2010 08/06/2010	0	0	88 88	185	
5112217601 08/07/2010 02/08/2011	3	3	186 186	371	_
RF 1.00 Acct. Total 9000637201	3 CCF's	2,244 Gallons	371	371 6 Gal/ Wday	6 Gal/ Cday
9000637201 02/03/2010 05/06/2010	11,932	11,932 A	93 93	93	
9000637201 05/07/2010 08/03/2010	26,277	38,209	89 89	182	
9000637201 08/04/2010 02/09/2011	32,659	70,868	190 190	372	
RF 0.77 Acct. Total	70,868	53,012,949	372	372 109,731	109,731
Facility Total	191,821	100000000000000000000000000000000000000			

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME

WASHINGTON UNIVERSITY MEDICAL SCHOOL ...

Premise Address 660 S. Euclid Ave.

PRIMARY MSD ACCOUNT NO. 5112216200 St. Louis MO. 63110 CONNECTION and SAMPLE POINT INFORMATION DSMH LATERAL NO. Treatment Area Lateral Type Bissell Point 01 Sanitary Or Combined 20G2 232C **Trunk Sewer** Western Mill Creek Description Lateral from buildings located S of McKinley Av & E of Euclid Av **Sewer Route** S on Taylor to Clayton Av, E to Boyle, N to Duncan then E to trunk to treatment plant SAMPLE POINT NO. 001 NPDES Outfall No. Description Flow from W in MH 30' N, 10' W of NE corner of building 27 (in alley) **Effective Discharge Components** Date **Process Description** RUD Avg Flow Unit Max Flow Unit Sanitary 2,019 GPD **GPD** D 7/18/07 Non Contact Cooling Water 3,250 GPD GPD D 7/18/07 Plant & Equipment Washdown 468 GPD GPD D 7/18/07 Regeneration/Reject WatWater softener regeneration 3.518 GPD **GPD** D 7/18/07 Process Waste Photographic & teaching labs 3,851 GPD **GPD** D 7/18/07 Storm Water 0 GPD GPD D 7/18/07 Laboratory Waste Research labs 1.733 GPD GPD D 7/18/07 Total Flow Avg = 14,839 Max = CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type DSMH Treatment Area Bissell Point 02 Sanitary Or Combined 19G3 229C Trunk Sewer Western Mill Creek Description Lateral from buildings N&S of Scott Av & E of Euclid Sewer Route S on Taylor to Clayton Av, E to Boyle, N to Duncan then E to trunk to treatment plant SAMPLE POINT NO. 005 Ordinance NPDES Outfall No. Description MH 200' W of Taylor Ave. on S side of Scott Ave. in street Effective **Discharge Components Process Description** Max Flow RUD Date Avg Flow Unit Init Sanitary 64,878 GPD GPD n 7/18/07 Kitchen Waste 9,176 GPD **GPD** D 7/18/07 Process Waste Photographic & teaching labs, animal care, etc. 82,658 GPD GPD D 7/18/07 Storm Water 0 GPD GPD D 7/18/07 Regeneration/Reject WatWater softener regeneration GPD 32,761 GPD D 7/18/07 Boiler Blowdown 39,666 GPD **GPD** D 7/18/07 Plant & Equipment Washdown 1,996 GPD GPD D 7/18/07 Laboratory Waste Research labs 22,155 GPD **GPD** D 7/18/07 Non Contact Cooling Water 88.038 GPD 7/18/07 **GPD** D Total Flow Avg = 341,328 Max = CONNECTION and SAMPLE POINT INFORMATION LATERAL NO. Lateral Type **DSMH** Treatment Area Lemay 03 Sanitary Or Combined 19G3 543C Trunk Sewer River des Peres - Upper Description Lateral N from Building 14 W of Euclid Av to courtyard Sewer Route W across S Kingshighway Blvd into Forest Park to trunk to treatment plant SAMPLE POINT NO. 003 NPDES Outfall No. Ordinance Flow from S in MH N of building 14 in drive, 6' S of O2 tanks Description Effective **Discharge Components Process Description** Avg Flow Unit Max Flow Date Unit RUD Sanitary 26,187 GPD GPD n 7/18/07 Non Contact Cooling Water 6,120 GPD **GPD** D 7/18/07 Plant & Equipment Washdown 2,179 GPD **GPD** D 7/18/07 Storm Water 0 GPD **GPD** D 7/18/07 Laboratory Waste Research labs 18,128 GPD **GPD** D 7/18/07 Process Waste Photographic & teachig labs, animal care 11,489 GPD **GPD** D 7/18/07

64,103

Max =

Report No. PIMS012A

04/28/2011

1:54:10 pm

Total Flow Avg =

Data Date & Time:

04/28/2011

1:54:10 pm

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUST L DATA SHEET - FACILITY INFORMA

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address 5112216200 PRIMARY MSD ACCOUNT NO.

660 S. Euclid Ave. St. Louis MO. 63110

	BOLESBURGER BERGER STEEL STEEL SE SKELLEN SKALLEN EN BROKE FAN	NITINFORMATION								
LATERAL NO.	Lateral Type		DSMH	Tre	atment		Bissell P			
04	Sanitary Or Comb	ined	19G3 259C		Trunk	Sewer	Western	Mill Creek		
Description	8" lateral E from E	Building 80 at Taylor and Pa	rkview to an unn	amed	street					
Sewer Route	N to Parkview to I	Duncan, E to trunk to treatm	ent plant							
SAMPLE POIN	T NO. 006 O	rdinance	N	PDE	S Outfa	all No.	•			
Description	6" trapped clay	pipe 13' N, 9' E of SE come	r of building 80							Fig
Discharge Com		s Description	Avg Fi	low	Unit	Ms	ax Flow	Unit	RUD	Effective Date
•	pottetts 110ccs	s Description			GPD	.,,,,	- X 1 10	GPD	D	7/18/07
Sanitary Storm Water					GPD			GPD	D ·	7/18/07
	nt WashWaster storag	re facility			GPD			GPD	D	7/18/07
riant & Equipmen	nt washioosou storag	Total Flow Avg =	1.0	034	OI D	Max =		GI D	D	//18/0/
	SS CONSTRUCTION		desentration desentation respective deservation	****************	000000000000000000000000000000000000000	*******************************	Ref Passassassassassassassassassassassas			
CONNECTION LATERAL NO.	and SAMPLE POI	NETINEOR MATERIAL	DSMH	Ter	atment	Ares	Bissell P	oint		
05	Sanitary Or Comb		20G2 235C	116		Sewer		Mill Creek		
03	Saintary Of Como	· ·	2002 2330			Sewei	Western	Willi Cleek		
Description	Multiple lines from	n Bldg 63 N to McKinley								
Sewer Route	E on McKinley to	Taylor, S to Clayton, E to B	loyle, N to Dunca	an, the	en E to	trunk to t	reatment pl	ant		
SAMPLE POIN	TNO. 007 O	rdinance	N	IPDE	S Outfa	all No.				
Description	Manhole in side	ewalk E of Bldg 63; 111' N,	2' E of SE come	r of b	uilding		•			
	•				_	M	ax Flow	Unit	ŔUD	Effective Date
Discharge Com	ponems rroces	ss Description	Avg F		Unit	IVI	ax Flow			
Sanitary			4	´ .	GPD			GPD	D	7/18/07
Non Contact Coo	ling Water		_		GPD			GPD	D	7/18/07
Process Waste				,	GPD			GPD	D	7/18/07
Laboratory Waste	Research lab	OS .	4		GPD ·			GPD	D	7/18/07
Storm Water			7		GPD			GPD	D	7/18/07
Plant & Equipme	nt Washdown	Total Flow Avg =	,	,462 450	GPD	Max =	•	GPD	D	7/18/07
100000000000000000000000000000000000000			پورۍ 	430		171AX				
		INT INFORMATION 😭	DOME	œ			_			
LATERAL NO.	•		DSMH	ire	eatmen		Lemay			
-06	Sanitary Or Comb	oined	19G3 492C		irunk	Sewer .	Euclid			
Description	Line exiting N sid	le of Bldg 4 (425 S. Euclid)	to main on Child	lren's	Pl.					
Sewer Route	. Flow N from bldg	to main on Children's Pl, E	across Kingshig	hway	to trunk	sewer, S	along RDF	to STP		
SAMPLE POIN	IT NO. 008	ordinance	Ň	VPDF	S Outf	all No.				
Description		7' W, 27' N of NE bldg come								
	**									Effective
Discharge Com	ponents Proces	ss Description	Avg F		Unit	, M	ax Flow	Unit	RUD	Date
Sanitary				′	GPD			GPD	D	2/28/11
Laboratory Waste		os		•	GPD			GPD	D	2/28/11
Non Contact Coo	ling Water		76	•	GPD			GPD	D	2/28/11
Storm Water		•			GPD			GPD	D	2/28/11
Plant & Equipme	nt Washdown	Total Flow A	4.5.4		GPD	Ma		GPD	D	2/28/11
	***************************************	Total Flow Avg =	131,	850	000000000000000000000000000000000000000	Max =				X0000000000000000000000000000000000000
		INT INFORMATION								
LATERAL NO.			DSMH	Tre	eatmen		Lemay			
07	Sanitary Or Comb	pined	19G3 187C		Trunk	Sewer	Euclid			
Description	Line exiting E sid	e of Bldg 4 (425 S. Euclid)	to main on Eucli	d						•
Sewer Route	Flow E from bldg	to main on Euclid, E on Ch	ildren's Pl. acros	s King	gshighw	ay, S to t	trunk along	RDP to STP		
<u></u>		4			-	-				

Repor	t N	o. P	IMS0	2A
Data '	n _a ,	- p.	Times	

05/02/2011

05/02/2011

8:37:55 am 8:37:55 am

METROPOLITAN ST. LOUIS SEWER DISTRICT INDUST L. DATA SHEET - FACILITY INFORMA

INDUSTRY NAME

WASHINGTON UNIVERSITY MEDICAL SCHOOL
Premise Address PRIMARY MSD ACCOUNT NO.

5112216200

660 S. Euclid Ave. St. Louis MO. 63110

SAMPLE POINT NO. 009 Ordinance	NPDE					
Description MH in E plaza 36' N, 27' E of S NE bldg						Effective
Discharge Components Process Description	Avg Flow	Unit	Max Flow	Unit	RUD	Date
Sanitary	26,404	GPD		GPD	D	2/28/11
Plant & Equipment Washdown	827	GPD		GPD	D	2/28/11
Storm Water	0	GPD		GPD	D	2/28/11
Non Contact Cooling Water	76,360	GPD		GPD	D	2/28/11
Laboratory Waste	28,259	GPD		GPD	D	2/28/11
Total Flow Avg =	131,850		Max =			

					E				

SP	EFF DATE	TYPE	<u>DESCRIPTION</u>
001	09/02/1998	DC32	Metallic Replacement
003	09/02/1998	DC37	pH Adjustment / Neutralization
003	09/02/1998	DC32	Metallic Replacement
005	06/16/1999	DC28	Grease Trap
005	07/17/2007	DC37	pH Adjustment / Neutralization
005	07/17/2007	DC32	Metallic Replacement
006	06/19/2000	DC32	Metallic Replacement
006	05/08/2001	DC37	pH Adjustment / Neutralization
007	07/17/2007	DC37	pH Adjustment / Neutralization

PRIORITY POLLUTANTS

Pollutant Description	<u>Status</u>	Pollutant Description	<u>Status</u>	Pollutant Description	Status
Acenaphthylene	SP	Acenaphthene	SP	4-Chloro-3-Methylphenol	SP
2,4,6-Trichlorophenol	SP	2,4-Dimethylphenol	SP	2,4-Dinitrotoluene	SP
1,2-Diphenylhydrazine	SP	3,3-Dichlorobenzidine	SP	Bis (2-Chloroethoxy) Methane	SP
Anthracene	SP	2,6-Dinitrotoluene	SP	2,4-Dichlorophenol	SP
2-Nitrophenol	SP	Naphthalene	SP	N-Nitrosodimethylamine	SP
Bis (2-Chloroisopropyl) Ether	SP	Bis (2-Chloroethyl) Ether	SP	1,2-Dichloropropane	SP
Trans-1,2-Dichloroethene	SP	Dibromochloromethane	SP	Bromodichloromethane	SP
1,2-Dichlorobenzene	SP	1,1-Dichloroethane	SP	Trichloroethene	KP
Ethylbenzene	SP	Chloroethane	SP	Acrylonitrile	SP
1,4-Dichlorobenzene	SP	1,1,2,2-Tetrachloroethane	SP	1,1-Dichloroethene	SP
Cyanide (Total)	KP	Asbestos (Fibrous)	KP	Silver (Total)	KP
Selenium (Total)	KP	Copper (Total)	KP	Cadmium (Total)	SP
Zinc (Total)	KP	Thallium (Total)	KP	Nickel (Total)	KP
Mercury (Total)	KP	Lead (Total)	KP	Chromium (Total)	KP
Arsenic (Total)	KP	1,2,4-Trichlorobenzene	SP	Phenol	KP
4-Nitrophenol	KP	2,4-Dinitrophenol	SP	2-Chlorophenol	SP
Nitrobenzene	KP	Benzo (A) Pyrene	SP	Benzidine	SP
Acrolein	KP	Toluene	KP	Methylene Chloride	SP
Chloromethane	SP	Chlorobenzene	KP	1,3-Dichlorobenzene	SP
1,1,1-Trichloroethane	SP	Tetrachloroethene	SP	Chloroform	KP
Carbon Tetrachloride	SP	Bromomethane	SP	Benzene	SP
2-Chloroethyl vinyl ether	SP	1,2-Dichloroethane	SP	1,1,2-Trichloroethane	SP
(cis & trans) 1,3-Dichloropropene	SP				

EXTRA STRENGTH SURCHARGE INFORMATION (A)

Report No. PIMS012A Data Date & Time:

05/02/2011 05/02/2011

8:37:55 am 8:37:55 am

PIMS FACILITY CONTACTS

For Account Number Selecte 5112216200

WASHINGTON UNIVERSITY MEDICAL SCHOOL

1 of

Located at

660 S. Euclid Ave.

St. Louis

MO 63110

Address Type

Co	ontact Name	Contact Title	Phone Type	Number	Ext.
Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
	-			,	
Livi	Isringhausen	Environmental Compliance Manager	FAX	(314)362-1095	
Livi	Isringhausen	Environmental Compliance Manager	OFF	(314)362-6735	
	· ·			` ,	
Livi	Isringhausen	Environmental Compliance Manager	FAX	(314)362-1095	
Livi	Isringhausen			(314)362-6735	
Linda	Vishino	Environmental Compliance Officer	OFF	(314)935-7864	
	Livi Livi Livi Livi Livi	Livi Isringhausen Livi Isringhausen Livi Isringhausen Livi Isringhausen	Livi Isringhausen Environmental Compliance Manager Livi Isringhausen Environmental Compliance Manager Livi Isringhausen Environmental Compliance Manager Livi Isringhausen Environmental Compliance Manager Livi Isringhausen Environmental Compliance Manager	Livi Isringhausen Environmental Compliance Manager OFF Livi Isringhausen Environmental Compliance Manager FAX Livi Isringhausen Environmental Compliance Manager OFF Livi Isringhausen Environmental Compliance Manager FAX Livi Isringhausen Environmental Compliance Manager OFF	Livi Isringhausen Environmental Compliance Manager OFF (314)362-6735 Livi Isringhausen Environmental Compliance Manager FAX (314)362-1095 Livi Isringhausen Environmental Compliance Manager OFF (314)362-6735 Livi Isringhausen Environmental Compliance Manager FAX (314)362-1095 Livi Isringhausen Environmental Compliance Manager OFF (314)362-6735

PIMS REFERENCE OF FIELD SAMPLING REQUIREMEN WASHINGTON UNIVERSITY MEDICAL SCHOOL

Account No Entered 5112216200

		MISE ADDRESS	CITY	ST	ZIP	
	660	S. Euclid Ave.	St. Lo	uis MO	63110	
001 Project Code: Pollutant Group	IM = 1 Poll Code	IPD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date	
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T237000	рН	Once/year	Grab	06/30/2011	
	T247000	Temperature	Once/year	Grab	06/30/2011	
•	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011	
Semi-Volatile Organics - Bas	se/ N094000	Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	06/30/2011	
Semi-Volatile Organics - Aci	id£7995000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2011	
Volatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2011	
003 Project Code: Pollutant Group	IM = 1 Poll Code	PD - Company - MSD Pollutant Description	Frequency .	Sample Type	End Date	
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T237000	рН	Once/year	Grab	06/30/2011	
	T247000	Temperature	Once/year	Grab	06/30/2011	
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011	
Semi-Volatile Organics - Bas	ie/N00A000	Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	06/30/2011	
Semi-Volatile Organics - Aci	dsT995000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2011	
Volatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2011	
	T208000 T213000	Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2011	
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2011	
	T237000	pH Temperature	Once/year	Grab	06/30/2011	
			Once/year			
	T247000	•	0	Grab	06/30/2011	
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2011	
Pami Volatila Organica - Res	T256000 T393000	Total Suspended Solids Silver (Total)	Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011	
-	T256000 T393000 e/N994600	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals	Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid	T256000 T393000 e/ N994010 d3T995000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids	Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acie	T256000 T393000 e/N994600	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals	Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics	T256000 T393000 e/N2946116 ds7995000 T996000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids	Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011	·
Semi-Volatile Organics - Acid Volatile Organics 106 Project Code:	T256000 T393000 e/NQAAAA d3795000 T996000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD	Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	·
Semi-Volatile Organics - Acid Volatile Organics Ode Project Code:	T256000 T393000 e/N994010 d37995000 T996000 IM = I Poll Code	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description	Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	·
Semi-Volatile Organics - Acid Volatile Organics Ode Project Code:	T256000 T393000 e/N994010 d\$7995000 T996000 IM = I Poll Code T208000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day)	Once/year Once/year Once/year Once/year Frequency Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011	·
Semi-Volatile Organics - Acid Volatile Organics Ode Project Code:	T256000 T393000 e/N94000 d57995000 T996000 IM = I Poll Code T208000 T213000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand	Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011 06/30/2011	·
Semi-Volatile Organics - Acid Volatile Organics Ode Project Code:	T256000 T393000 e/N94000 d57995000 T996000 IM = I Poll Code T208000 T213000 T234000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total)	Once/year Once/year Once/year Frequency Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011 06/30/2011 06/30/2011	·
Semi-Volatile Organics - Acid Volatile Organics Ode Project Code:	T256000 T393000 e/NQ4000 d5795000 T996000 IM = I Poll Code T208000 T213000 T234000 T237000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH	Once/year Once/year Once/year Frequency Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics Ode Project Code:	T256000 T393000 e/NQ4600 ds7995000 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics Oo6 Project Code: Pollutant Group	T256000 T393000 e/NQ4610 ds7995000 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T393000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Silver (Total)	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics Oo6 Project Code: Pollutant Group	T256000 T393000 e/NQ4600 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T393000 e/NQ46000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
	T256000 T393000 e/NQ4600 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T393000 e/NQ46000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics Oo6 Project Code: Pollutant Group Semi-Volatile Organics - Base Volatile Organics - Acid Volatile Organics	T256000 T393000 e/NQAGGB ds 995000 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T393000 e/NQAGGB ds 995000 T996000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics O06 Project Code: Pollutant Group Semi-Volatile Organics - Base Semi-Volatile Organics - Acid Volatile Organics	T256000 T393000 e/NQAGGB ds 995000 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T393000 e/NQAGGB ds 995000 T996000	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics O06 Project Code: Pollutant Group Semi-Volatile Organics - Base Semi-Volatile Organics - Acid Volatile Organics	T256000 T393000 e/NQAGGB ds 995000 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T237000 T247000 T256000 T393000 e/NQAGGB ds 995000 T996000 IM = II	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	
Semi-Volatile Organics - Acid Volatile Organics O06 Project Code: Pollutant Group Semi-Volatile Organics - Base Semi-Volatile Organics - Acid Volatile Organics O17 Project Code: Pollutant Group	T256000 T393000 e/NQ4600 T996000 IM = I Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T393000 e/NQ4600 dS7995000 T996000 IM = II Poll Code	Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Silver (Total) Semi-Volatile Organics - Base/Neutrals Semi-Volatile Organics - Acids Volatile Organics PD - Company - MSD Pollutant Description	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011	



Account No Entered 5112216200

SPN	PRE	MISE ADDRESS	CITY	ST	ZIP
	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2011
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2011
	T237000	pH	Once/year	Grab	06/30/2011
	T247000	Temperature	Once/year	Grab	06/30/2011
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2011
	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
emi-Volatile Organics - Bas		Semi-Volatile Organics - Base/Neutrals	•	Comp-Time 04 Hrs	. 06/30/2011
Semi-Volatile Organics - Ac		Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2011
/olatile Organics	T996000	Volatile Organics	Once/year	Grab	06/30/2011
008 Project Code:	IM == 1	PD - Company - MSD			
Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date
	T208000	Biochemical Oxygen Demand (5 Day)	Once/year	Comp-Time 04 Hrs	06/30/2011
•	T213000	Chemical Oxygen Demand	Once/year	Comp-Time 04 Hrs	06/30/2011
	T234000	Oil and Grease (Total)	Once/year	Grab	06/30/2011
	T237000	pH	Once/year	Grab	06/30/2011
	T247000	Temperature	Once/year	Grab	06/30/2011
	T256000	Total Suspended Solids	Once/year	Comp-Time 04 Hrs	06/30/2011
	T335000	Chromium (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
	T339000	Copper (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
	T368000	Lead (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
	T377000	Nickel (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
•	T393000	Silver (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
	T403000	Zinc (Total)	Once/year	Comp-Time 04 Hrs	06/30/2011
henolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2011
emi-Volatile Organics - Bas	se/N094600	Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	06/30/2011
	15005000	Semi-Volatile Organics - Acids	Once/year	Comp-Time 04 Hrs	06/30/2011
emi-Volatile Organics - Aci	asi 332000		•	•	06/30/2011
Semi-Volatile Organics - Aci Volatile Organics	T996000	Volatile Organics	Once/year	Grab	00/30/2011
		Volatile Organics	Once/year	Grab	00/30/2011
olatile Organics	T996000	Volatile Organics PD - Company - MSD Pollutant Description	Frequency	Grab Sample Type	End Date
olatile Organics O9 Project Code:	T996000 IM = I Poll Code	PD - Company - MSD Pollutant Description	Frequency	Sample Type	End Date
olatile Organics O9 Project Code:	T996000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day)	Frequency Once/year	Sample Type Comp-Time 04 Hrs	End Date 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = 17 Poll Code T208000 T213000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand	Frequency Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = 17 Poll Code T208000 T213000 T234000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total)	Frequency Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab	End Date 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH	Frequency Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = IP Poll Code T208000 T213000 T234000 T237000 T247000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature	Frequency Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = II Poll Code T208000 T213000 T234000 T237000 T247000 T256000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids	Frequency Once/year Once/year Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total)	Frequency Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = TPOR CODE T208000 T213000 T234000 T237000 T247000 T256000 T335000 T339000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total)	Frequency Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T339000 T368000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total)	Frequency Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T339000 T368000 T377000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total) Nickel (Total)	Frequency Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics O9 Project Code:	T996000 IM = T9011 Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T335000 T368000 T377000 T393000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total) Nickel (Total) Silver (Total)	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Sample Type Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
Olatile Organics O9 Project Code: Pollutant Group	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T339000 T368000 T377000 T393000 T403000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total) Nickel (Total) Silver (Total) Zinc (Total)	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
Olatile Organics O9 Project Code: Pollutant Group henolic Organics - Acids	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T339000 T368000 T377000 T393000 T403000 T991000	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total) Nickel (Total) Silver (Total) Zinc (Total) Phenolic Organics - Acids	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
Project Code: Pollutant Group Companies - Acids Pollutatile Organics - Basemi-Volatile Organics	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T335000 T368000 T377000 T393000 T403000 T403000 T991000 ee/NQAAQOB	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total) Nickel (Total) Silver (Total) Zinc (Total) Phenolic Organics - Acids Semi-Volatile Organics - Base/Neutrals	Frequency Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011
olatile Organics Op Project Code: Pollutant Group henolic Organics - Acids	T996000 IM = 17 Poll Code T208000 T213000 T234000 T237000 T247000 T256000 T335000 T335000 T368000 T377000 T393000 T403000 T403000 T991000 ee/NQAAQOB	PD - Company - MSD Pollutant Description Biochemical Oxygen Demand (5 Day) Chemical Oxygen Demand Oil and Grease (Total) pH Temperature Total Suspended Solids Chromium (Total) Copper (Total) Lead (Total) Nickel (Total) Silver (Total) Zinc (Total) Phenolic Organics - Acids	Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year Once/year	Comp-Time 04 Hrs Comp-Time 04 Hrs Grab Grab Grab Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs Comp-Time 04 Hrs	End Date 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011 06/30/2011

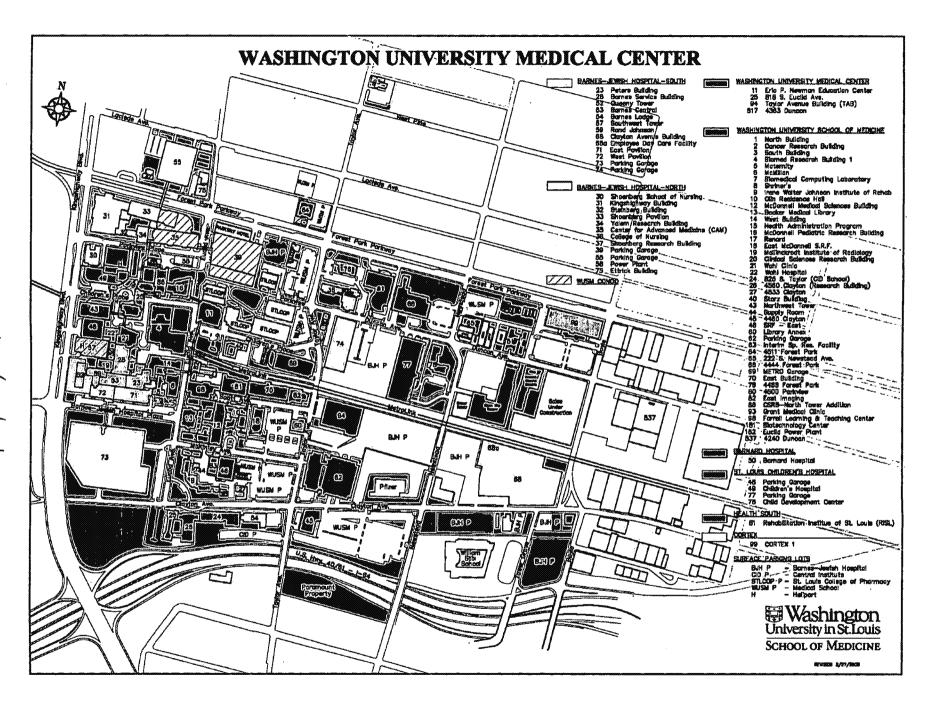
2 of 2

report no. i miodoni	4/20/2011	2.00.04PW	
Data Date & Time	4/28/2011	2:00:04PM	

ACETONE	
ACETONITRILE	
ACRYLAMIDE	
BUTYL ALCOHOL	<u></u>
CARBON TETRACHLORIDE	
CHLOROFORM	L
ETHYL ACETATE	
FORMALDEHYDE, SOLUTIONS	
METHYL ALCOHOL	
PHENOL, SOLID	
PYRIDINE	<u> </u>
TOLUENE	I
TRICHLOROETHYLENE	1
XYLENE (MIXED ISOMERS)	<u> </u>

ACETONE
ACETONITRILB
ACRYLAMIDE
BUTANOL
CAREON TETRACHLORIDE
CHLOROFORM
ETHYL ACETATE
FORMALDEHYDE
METHYL ALCOHOL (DOMESTIC SHIPMENTS ONLY)
PHENOL
PYRIDINE
TOLUENE
TRICHLOROETHYLENE
XYLENE

Washington University Medical School 51/22162-00



METROPOLITAN ST. LOUIS SEWER DISTRICT INDUSTRIAL USER SELF MONITORING REPORT

MSD

PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Effective:

2/1/2009 Expiration: 12/31/2012

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2011

(Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories

Analysis Performed By:

St. Louis Testing Laboratories

PART II:

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number			001		003		005	Γ	
Dates on Which Samples Were Colle	cted	G: C:	1/18/2011 1/18/2011	G: C:	1/19/2011 1/19/2011	G: C:	1/18/2011 1/18/2011		
Times at Which Samples Were Collec	cted	G: C:	9:00 AM (9:00am - 2:49pm	G: C:	9:00 a.m. 9:00am - 5:10 pm	G: C:	8:40am 8:45 am - 2:45 pm		,
	1 12 41 -	ı	Record Sample						
PARAMETER Flow	LIMIT	E E	=grab, C-compo	*	T	7			Units
	****	 	14,500	E	64,500	E	340,000	<u> </u>	Gal/Day
Biological Oxygen Demand	****	C	59	C	114	C	63	┞	mg/L
Chemical Oxygen Demand		C	160	С	218	C	141		mg/L
Total Suspended Solids	****	C	75	С	61	<u> C</u>	86	<u> </u>	mg/L
pH , ,	5.5 - 11.5	G	8.15 ´	G	7.98	G	9.00		рН
Oil & Grease	200	G	13	G	15 .	G	7		mg/L
Temperature	60	G	17	G	14	G	6 -,		Celcius
Silver	0.5	С	. ND	С	ND	С	ND		mg/L
· ·						T.	-	<u> </u>	
·				<u> </u>		1		<u> </u>	·
	* :					†			
All daks, times, and sample	***************************************								
results as recorded on the	,								
attached lab data sheets							,		
are correct, per pc w/									
1. Isfirghousen. 1-31-2011.								<u> </u>	
SR						†	เลยใหม่เลยในเป็นประเทณ		
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You must complete and sign the certification statements on the reverse side.

RECEIVED

JAN 28 2011

DIVISION OF ENVIRONMENTAL COMPLIANCE



PLEASE READ THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT

PART I:

IDENTIFYING INFORMATION

Company Name:

Washington University School of Medicine

Permit No:

5112262-00

Premise Address:

660 South Euclid Ave., St. Louis, MO, 63110

Monitoring Period:

2010

√ (Jan-Mar)

(Apr-June)

(July-Sept)

(Oct-Dec)

Samples Collected By:

St. Louis Testing Laboratories
St. Louis Testing Laboratories

Analysis Performed By: **PART II:**

ANALYTICAL RESULTS OF SELF MONITORING

MSD Sample Point Reference Number			006		007				######################################
Dates on Which Samples Were Colle	cted	G: C:	1/18/2011 1/18/2011	G: C: -	3/16/2010 -3/16/2010				**************************************
Times at Which Samples Were Colle	cted	G:	8:25 AM 8:25am-4:25 pm	G:	7:45 AM 7:45 am - 2:53 pm		***************************************	<u> </u>	
		F	Record Sample	Types	(G,C,M, or E) A	nd Re	sults Below		
PARAMETER	LIMIT	G=	grab, C-compo	site, N	/l=measured flov	v, E=e	stimated flow		Units
Flow	***	E	950	<u> </u> E	23,500				Gal/Day
Biological Oxygen Demand	***	С	80	С	37				mg/L
Chemical Oxygen Demand	***	С	167	С	73				mg/L
Total Suspended Solids	***	С	. 26	С	38				mg/L
рН	5.5 - 11.5	G	9	G	8.14				рН
Oil & Grease	200	G	ND	G	ND				mg/L
Temperature	60	G	9	G	16				Celcius
Silver	0.5	С	ND	С	ND				mg/L
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You must complete and sign the certification statements on the reverse side.

JAN 28 2011

DIVISION OF ENVIRONMENTAL COMPLIANCE

INDUSTRIAL USER SELF MONITORING REPORT PAGE 2

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

В	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below:
	handifu yadar nagaliyafi ayatiya ta ayatiya ta ayatiya ta ayatiya ta ayatiya ta ayatiya ta ayatiya ta ayatiya
	I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the
	person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted
	is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false
	information, including the possibility of fine and imprisonment for knowing violations.
	Print or type name of signing official: Livi Is nahousen
	Title: Environmental. Compliance Manager Telephone: 342-4735
	Signature: Date: 1/28/11
<u></u>	

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JAN 28 2011

DIVISION OF ENVIRONMENTAL COMPLIANCE



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

January 25; 2011 Lab No. 11E-0093 Invoice No. 129727 Page 2 of 2

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 1/18/11, 9:00 A.M. WASTEWATER COMPOSITE, SP 001, 1/18/11, 9:00 A.M. – 2:49 P.M. WASTEWATER GRAB, SP 003, 1/19/11, 9:00 A.M. WASTEWATER COMPOSITE, SP. 003, 1/19/11, 9:10 A.M. – 5:10 P.M. WASTEWATER GRAB, SP 005, 1/18/11, 8:40 A.M. WASTEWATER COMPOSITE, SP 005, 1/18/11, 8:45 A.M. – 2:45 P.M. WASTEWATER CRAP, SP 006, 1/18/11, 8:30 A.M.

WASTEWATER GRAB, SP 006, 1/18/11, 8:20 A.M.

WASTEWATER COMPOSITE, SP 006, 1/18/11, 8:25 A.M. – 4:25 P.M WASTEWATER GRAB, SP 007, 1/18/11, 8:50 A.M. WASTEWATER COMPOSITE, SP 007, 1/18/11, 8:50 A.M. – 2:47 P.M.

Units: mg/L Except As Noted

ANALYTE	006	007	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	80	37	5	5210 B	01/21/11
Chemical Oxygen Demand (C)	167	73	10	410.4	01/24/11
Total Suspended Solids (C)	26	38	5	160.2	01/21/11
pH (Std. pH Units) (G)	8.62	8.14		150.1	01/18/11
Temperature, °C (G)	9	- 16	oth the not one	170.1	01/18/11
Oil & Grease (G)	ND	ND	5	1664	01/21/11
Silver (C)	ND	ND	0.05	200.7	01/21/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

Steve Root, Manager **Environmental Testing**

SR/krm

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DIVISION OF ENVIRONMENTAL COMPLIANCE



OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST, NOT OFFICIAL WITHOUT THE RAISED SEAL OF ST. LOUIS TESTING LANDRATORIES, INC.
SEE REVERSE FOR CONDITIONS.



2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085 Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

> January 25, 2011 Lab No. 11E-0093 Invoice No. 129727 Page 1 of 2

WASHINGTON UNIVERSITY Campus Box 8229 660 South Euclid Ave. St. Louis, MO 63110

Attention: Livi Isringhausen

REPORT OF TESTS

SAMPLE ID: WASTEWATER GRAB, SP 001, 1/18/11, 9:00 A.M.
WASTEWATER COMPOSITE, SP 001, 1/18/11, 9:00 A.M. – 2:49 P.M.
WASTEWATER GRAB, SP 003, 1/19/11, 9:00 A.M.
WASTEWATER COMPOSITE, SP. 003, 1/19/11, 9:10 A.M. – 5:10 P.M.
WASTEWATER GRAB, SP 005, 1/18/11, 8:40 A.M.
WASTEWATER COMPOSITE, SP 005, 1/18/11, 8:45 A.M. – 2:45 P.M.

WASTEWATER GRAB, SP 006, 1/18/11, 8:20 A.M.

WASTEWATER COMPOSITE, SP 006, 1/18/11, 8:25 A.M. – 4:25 P.M. WASTEWATER GRAB, SP 007, 1/18/11, 8:50 A.M.

WASTEWATER COMPOSITE, SP 007, 1/18/11, 8:50 A.M. - 2:47 P.M.

Units: mg/L Except As Noted

ANALYTE	001	003	005	MQL	METHOD NUMBER	DATE OF ANALYSIS
Biological Oxygen Demand (C)	59	-114	63	5	5210 B	01/25/11
Chemical Oxygen Demand (C)	160	218	141	10	410.4	01/24/11
Total Suspended Solids (C)	75	61	86	5	160.2	01/21/11
pH (Std. pH Units) (G)	8.15	7.98	9.00	4 0 m oo m	150.1	01/18-19/11
Temperature, °C (G)	17	15	7	*****	170.1	01/18-19/11
Oil & Grease (G)	13	14	6	5	1664	01/21/11
Silver (C)	ND	ND	ND	0.05	200.7	01/21/11

MQL: Minimum Quantitative Limit ND: None Detected Above MQL

(C)-Composite

(G)-Grab

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DIVISION OF ENVIRONMENTAL COMPLIANCE



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METROPOLITAN SEWER DISTRICT INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

5R 1-25

MSD

PART I:	ART I: IDENTIFYING INFORMATION								
Company Name	e: _Washingto	on University Medical Sch	ool						
Permit No:			51	12-2162-	00				
Premise Addres	s: 660 South	Euclid, St. Louis, MO 63	110						
Reporting Perio	d: 2010	[] (JAN-MAR)		(APR-JUN)	[(JUL-SEP)	(OCT-DEC)			
PART II: RECORD OF DISPOSAL OF RADIOACTIVE MATERIALS TO THE SEWER									
	RA	DIONUCLIDE	***************************************	ACTIVITY DI	SCHARGED (millicuries)				
C-14	, , , , , , , , , , , , , , , , , , ,				**************************************	0.1126			
H-3						24.7858			
I-125				·		0.0960			
Ni-63			*********************			1.6670			
P-32		·				0.5205			
S-35			***************************************			0.2453			
	TOTAL	ACTIVITY DISCHARGE	ED:		······	27.4273			
Everyone mus	ials in the bo	FICATION STATEMENT ox under Item A. the information under N N OF COMPLIANCE V	items A		report.				
and l cer gove Miss	rtify that to the erning dispos souri Departi	ne best of my knowledge &	belief, a sewage fo y, have b	all requirements of 1 or material regulate een met for the peri	0 CFR Part 20.2003 and 19 d by the Nuclear Regulatory iod covered by this report.				
I certify under a system designe the person or p submitted is to submitting false	penalty of law d to assure the ersons who re the best of me information	w that this document and al nat qualified personnel prop nanage the system, or those	Il atachm perly gath e persons ue, accur of fine ar	ents were prepared her and evaluate the directly responsible ate, and complete. I	under my direct supervision information submitted. Base of for gathering the information am aware that there are sign	ed on my inquiry of on, the information			
Title: Radiation	safety Spec	rialist III		Telephone	: (314) 362-2996				
Signature:	2			Date: 01/20/2011					

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JAN 24 2011

DIVISION OF ENVIRONMENTAL COMPLIANCE